WEST MARKETING ISSUE
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Potash Output in 1958 Down, But Sales Rise 3%

Imports and Exports Gain, Bureau of Mines Report Shows

WASHINGTON—Production of marketable potassium salts in the U.S. in 1958 was 2,190,000 short tons of potash (K_2O equivalent), 3% less than in 1957, according to preliminary estimates by the Bureau of Mines, U.S. Department of the Interior. Based on nine months' data, potash sold or used was estimated to be 3% more than in the previous year, totaling 2,200,000 short tons of K_2O equivalent.

Operations in New Mexico were cut back extensively during the summer by shorter hours, economic shutdowns and labor strikes. Large stocks enabled fulfillment of all orders, the Bureau of Mines said.

Based on partial-year data, estimated imports of potash increased about 20%, and exports increased about 7%.

Exploration and development of the large Canadian potash deposits continued at a rapid pace during the year. Companies representing Canada, the U.S., France and West Germany had projects underway. The Provincial Government of Saskatchewan estimated reserves of over 6 billion tons of recoverable potash from beds 5 to 10 feet thick averaging 25% K_2O or more.

The Potash Company of America, Ltd., completed its shaft 15 miles east of Saskatoon and mine development was on schedule. The PCA refinery began operating at the end of 1958.

Shaft sinking by International Minerals and Chemical Corp. at Esterhazy, 140 miles northeast of Regina, passed the mid-point by the end of 1958. Construction of the refinery and other surface facilities was underway. The Continental Potash Corp. was completing a shaft begun several years ago at Unity, Saskatchewan, by Western Potash Corp.

SunOlin to Start Building New Urea Plant in March

PHILADELPHIA—Construction of SunOlin Chemical Co.'s $11 million urea plant at north Claymont, Del. is scheduled to start in March, 1959 and should go into operation by the end of the year, James I. Harper, president of SunOlin, has announced.

The 13½-acre site is adjacent to Sun Oil Co.'s refinery at Marcus Hook, Pa. Employment opportunities will be provided for approximately 40 persons.

SunOlin, a joint subsidiary of Sun Oil Co. and Olin Mathieson Chemical Corp., will use the Fauser-Montecatini process to produce urea. The license agreement was signed with the chemical firm of Montecatini, of Milan, Italy.

The new plant will have a capacity of 73,000 short tons per year of urea prills and crystals and will be the fourth urea plant in the U.S. and the

(Turn to SUNOLIN, page 5)

USDA EXPERTS CONFIRM:

Nutrient Drain Caused By Fat Yields Adds Up To Sales Opportunity

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—U.S. Department of Agriculture scientists at Beltsville last week gave their blessing to a suggestion from Croplife that the heavy yields of crops in 1958 placed a heavy drain on basic plant food nutrients and that for the coming crop year prudent producers should re-examine their soil conditions, and prepare to reflect the drains on their soils with replacement values of plant food.

This suggestion was provoked by a comment to this reporter some years ago from a district manager of a potash company, who attributed high cotton yields to a previous periodic history of four dry years, in which plant food applications had accumulated and when a good "water" year brought through this latent accumulation and added to the acceleration of crop production. This suggested that last year's high yield, particularly in cotton, might reflect a larger than usual loss of plant food ingredients.

USDA Beltsville experts say this theory is sound, but must be modified by the observation that in the growing crop year of 1958, there was an unusual combination of all good production factors which made for the high yields. Those additional factors obviously were good water supply outside the irrigated cotton areas, good weather generally and adequate use of pesticidal chemicals.

But, the Beltsville specialists declare that notwithstanding those additional factors which made for record yields, prudent farmers should know that such yields have robbed the soil of important material values of plant foods in their soil.

Here is the priority the Beltsville experts give to potential plant food loss from the soil from last year's crops. First the loss of nitrogen is featured; next they say that potash depletion follows and phosphorus is the third.

This observation covers the aspects of weather and water last year, but it does carry the assurance of Beltsville experts that even after those aspects have been measured there is a certainty that the high crop yields of 1958 in cotton and corn can only be replaced by better than normal replacement of soil nutrients.

That this condition is financially possible for the cotton and corn farmers is not unthinkable.

An examination of farm income, as represented by crop values as reported by USDA for 1958, reveals that the corn and cotton farmers

(Turn to OPPORTUNITY, page 5)

Research by USDA Scientists Unlocks Secrets of New Weed Killing Compounds

WASHINGTON — As a result of basic research, new herbicides that attack weeds by specific lethal action are being developed and laboratory-tested by U.S. Department of Agriculture scientists. This route to effective weed control was opened a few months ago when scientists of USDA's Agricultural Research Service found how dalapon, a commonly used grass killer, and its derivatives inhibit plant growth.

Discoverers of the mechanism of the toxic action of these related chemicals were Dr. James L. Hilton, Walter A. Gentner, Leonard L. Jansen and Jesse S. Ard, ARS scientists at USDA's Agricultural Research Center, Beltsville, Md.

Dr. Hilton reviewed the group's discoveries Jan. 7 before a meeting of the Northeastern Weed Control Conference in New York City.

Their research, he said, showed that dalapon and related compounds created a vitamin deficiency in weeds by interfering with the formation of an important vitamin within the plant. The vitamin, pantothenic acid, is one of the B-complex group. It is essential to the growth and development of all living organisms.

Evidence that dalapon (2,2,-dichloropropionic acid) and its related compounds act to inhibit plant growth, he explained, was first indicated by test-tube experiments with ordinary yeast. Its failure to grow after treatment with dalapon was found to be caused by pantothenic-acid deficiency.

Similar experiments with plants of a higher order than yeast, such as barley, oats and ryegrass, produced the same result.

Further confirmation of the effect of dalapon was obtained by using pantothenic acid on treated plants in a successful attempt to overcome the effect of the chemical.

Normally, Dr. Hilton said, pantothenic acid is synthesized within a plant by enzymatic action on two known chemicals, pantoate and beta alanine. The plant enzyme has separate sites of attachments for each one of these chemicals. The enzyme becomes active when attachment occurs and combines the two. The com-

(Turn to USDA, page 8)

Alabama Soil Society Meets; Frank E. Boyd Elected President

MONTGOMERY, ALA.—The Alabama Soil Fertility Society, Inc., held its fourth annual meeting here and reelected Frank E. Boyd, southern agronomist for the Virginia-Carolina Chemical Corp., as president.

Charles W. Summerour, agronomist for the American Potash Institute, was reelected secretary-treasurer. M. H. Conner, Eufaula Cotton Oil Co., and A. T. Joiner, Virginia-Carolina Chemical Corp., were named new vice presidents of the organization.

New directors elected to serve during 1959-60 included K. B. Maddox, Greenville; T. W. Allen, Attalla; Dick Bowden, Montgomery; and George Williamson, Montgomery. Directors with a year to serve are J. E. Dorland, J. C. Gentle, J. W. Morgan, and J. Roy Pratt, Jr.

Speaker at the annual banquet was Dr. Alfred P. Haake of Largo, Fla. Mr. Boyd opened the activities the following day with a report on the work of the past year. He said that officers of the organization devoted much time and labor to the soil testing program. "Soil testing is a must

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Mississippi Chemical To Build Urea Plant

YAZOO CITY, MISS.—Mississippi Chemical Corp., Yazoo City, has announced plans for the construction of a $1.5 million urea plant here.

The plant, according to Owen Cooper, executive vice president of Mississippi Chemical Corp., will produce about 100 tons of urea a day.

"We hope to have the construction completed within a year," Mr. Cooper said.

Colorado Research Shows Cattle Gains with Better Management

WASHINGTON—Several years of mountain meadow research in Colorado has demonstrated that improved management can mean big gains in beef cattle production efficiency, U.S. Department of Agriculture and state researchers reported.

The research, which has been concerned mainly with the time of harvesting forage crops, use of irrigation water and fertilization, compares the advantages to be gained from skillful use of these combined practices with their ordinary use. Certain phases of this research have been reported previously by USDA.

The total of these practices: (1) produced market-weight beef animals faster; (2) cut forage intake per pound of beef produced; (3) took less water to produce a pound of forage; (4) increased the yield of harvested forage per acre, and (5) increased the crude protein content of the forage.

The studies were conducted on two ranches by Forrest M. Willhite, soil scientist of USDA's Agricultural Research Service, in cooperation with the Colorado Agricultural Experiment Station scientists at Grand Junction. Rancher research corporations and individual ranchers aided.

Only 520 days were required to produce 1,000-lb. beef animals with the experimental practices, compared with 1,260 days under ordinary ranching conditions. Total forage intake per beef animal in test practices was only 13,300 lb. against a total forage intake of 20,300 lb. for usual practices.

Thus, cattle under test practices produced a pound of beef on about 13 lb. of forage, compared with some 30 lb. needed for a one-pound gain under usual conditions.

Striking differences were found in a comparison of adequate and inadequate fertilization, irrigation, and crop management. The combination of an early harvest, applied nitrogen and good irrigation practices increased the hay yield to 4.82 tons per acre, crude protein to 19.1%, and crude protein per acre to 1,844 lb.

A late harvest produced only 2.16 tons of forage per acre without the application of nitrogen and with poor management of water. Crude protein in the forage amounted to only 10.7%, and crude protein produced per acre totaled 464 lb. under these conditions.

During a 90-day growing season, yields of grass produced by adding nitrogen were approximately 12,000 lb. per acre, and yields for a grass-legume mixture were about 7,500 lb. per acre.

Good versus poor harvest-management differences are reflected in the quality of the forage crop, Mr. Willhite said. Yield from an early cutting plus a second cutting was generally equal in tonnage to the entire yield of a late cutting. But early-cut forage plus second-cut averaged more than 12% crude protein—50% more than the late cut. In both cases, about 60% of the forage was grazed and 40% was harvested and fed as hay.

A combination of good water management and early harvest produced a ton of forage with as little as 9.5 inches of applied water an acre. Under conditions of usual water management and late harvest, up to 136 acre-inches of applied water were required to produce one ton of forage.

Good management needed only 135 gal. of water to produce one pound of hay, and 1,625 gal. to produce a pound of beef. Ordinary management practices required 2,000 gal. of water for a pound of hay, and 26,000 gal. for a pound of beef.

Barley Improvement Conference Scheduled

MILWAUKEE—Malting Barley Improvement Assn. has announced that the biennial Barley Improvement Conference will be held in Milwaukee, Jan. 20, at the Schroeder Hotel.

Dr. Marion W. Parker will highlight the program with an after-dinner address on "The Program of the Crops Research Division." Dr. Parker is director, Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md.

Iowa Entomologists Have Bleak Outlook On Borer Situation

AMES, IOWA—The European corn borer may be in for another "field day" in 1959, Iowa State College entomologists said here recently.

Harold Gunderson and Earle Raun, entomologists, reported that they expect fewer than 15% of Iowa's farm operators to carry out control measures on this pest. This is discouraging, they point out, in view of the fact that effective control measures are available to stop a pest that's caused an estimated average damage of $50 million a year in Iowa over the past 15 years.

Even though a high percentage of the state's farm operators have equipment to apply these chemicals, many say they "don't understand how to determine the need for or the timing of chemical treatment," the entomologists said. Others apparently aren't interested in learning the simple procedures recommended, Mr. Gunderson and Mr. Raun added.

They predict, however, that the chances are relatively small for the dry weather favorable to grasshopper development. If the weather should be dry next summer, the presence of grasshopper eggs in the soils of northern and northwestern Iowa could mean a heavy outbreak. But the rest of the state should have no real grasshopper problem.

Perhaps the most optimistic insect outlook offered was for the total eradication of cattle grubs in beef cattle. Effective chemicals, and packing plants offering to help cover costs, have given cattlemen hope that the grub can be wiped out. This, they added, eventually would save the Iowa livestock industry 20 to 30 million dollars annually.

Rats, on the other hand, are expected to continue boosting their already staggering population in 1959, Mr. Gunderson and Mr. Raun said.

HOME-MADE TEST

CLYDE, N.D.—William Musolf, Clyde farmer, used a smaller amount of fertilizer on a check plot just to see if he was using too much on the rest of his land. He found out that neither the yield nor profit could match the results from the rest of the field which was fertilized according to soil tests. The check plot, on which he used only 26 lb. of 11-48-0, yielded 37 bu., while the regular yield was 41 bu., which had 50 lb. of 11-48-0. Moneywise, the underfertilized plot netted $5.60 over the fertilizer costs and the heavier rate $11.58 over the fertilizer costs.

California Crop Value Tops 1957

SACRAMENTO, CAL.—The total value of California's 1958 crop production exceeded that of 1957 in spite of lower tonnage produced, according to the year-end summary of the California Crop and Livestock Reporting Service.

The production of all California crops in 1958 totaled 29,526,400 tons. This has been exceeded only in 1956 and 1957. Production declines from 1957 were registered in both the field crop and fruit crop groups while total vegetable tonnage increased sharply.

With higher prices received to date for many crops, the state's 1958 crop production is valued at $1,762,809,000, 3% above previous year but 4% below the record year of 1956. These values do not include the value of livestock production, flowers, or nursery products, for which estimates are not yet available.

In comparison with 1957, value of production showed appreciable increases in both the field and fruit crop groups but declined slightly in the vegetable crop group. It is notable that the value trend between 1957 and 1958 ran counter to the production trend in each group as well as for the total. The field crop and fruit groups went down in production and up in value, while the vegetable group increased production and declined in value.

While value of crop production is at a relatively high level, farmers' production expenses have also continued high and for the last few years have taken nearly two thirds of the producer's dollar. (The data on the value of crop production do not represent income to farmers and are not comparable with cash receipts from farm marketings which are computed on a calendar year basis and excludes products fed or used on the farm where grown.)

The large 1958 crop tonnage was harvested from 8,545,110 acres. This acreage is only slightly above that of previous year but is below every other year since 1951. While the 1958 acreage is 22% above the average acreage harvested from 1930 through 1939, the total volume of crop production has risen 85% since that period, reflecting largely the tremendous increases in yields per acre.

The abnormally heavy spring rainfall was the outstanding feature of the 1958 crop season with beneficial effects to some crops and harmful effects to others. Rainfall prior to Jan. 1, 1958, was above normal in the northern part of the state, normal to slightly above in the central part, and below normal in southern California. From late January on through early April, rainfall was frequent and, at times, continuous for several days. Most weather stations reported total rainfall for the season (July 1-June 30) at more than 50% above normal.

Winter and spring plantings were delayed and planting plans altered. Some acreage intended for winter planted grain was shifted to later crops such as beans and sorghum grain. The effects on growing crops were varied. Dryland grain and ranges received the greatest benefits. Winter grain in poorly drained areas was affected by diseases and in extreme cases was drowned out. The wet weather played havoc with spraying and dusting schedules, and many fruit crops received inadequate protection. Most early blooming crops were pollinated poorly or pollinated fruit failed to develop properly. Most severely affected were almonds, apricots, cherries and prunes, but plums, peaches, pears and nectarines also suffered in some areas. On the other hand, grapes, walnuts and olives yielded exceptionally well. The rains delayed planting of vegetable crops but had little effect on over-all vegetable production.

The summer growing season was satisfactory for most field crops. Prolonged warm weather in August and September benefited growth and hastened maturity of fall ripening field crops. Only bean yields were hurt by the continuous warm weather.

Field crop production in 1958 was 4% below the record volume of 1957 but was above all other years. Value of field crop production was 5% above 1957.

Total 1958 tonnage of fruits and nuts dropped sharply from 1957 to the smallest production since 1940. However, the reduced tonnage brought higher prices for many crops, and the combined value rose 4% to $537,707,000.

California's vegetable crop production (including melons and strawberries) rose well above 1957, but the value of this production was lower than that of the preceding year.

HEAD MISSOURI GROUP—Officers of the Soil Fertility and Plant Nutrition Council of Missouri for 1959 are, left to right, Austin A. Mount, Davison Chemical Co., Joplin, president; Robert Weis, Virginia-Carolina Chemical Corp., St. Louis, vice president; and Frank Hoffman, Hoffman and Reed Farm Supply, Trenton, secretary-treasurer. Bill Mainord, at right, Farm Bureau Service Co., New Florence, is the retiring president. The council elected the slate of officers at its Soil Fertility and Plant Nutrition Short Course held recently on the University of Missouri campus in Columbia. (Croplife, page 1, Dec. 15.)

Fertilizer Dealers Day To Be Held in Oregon

PORTLAND, ORE.—The Seventh Annual Fertilizer Dealers Day, cosponsored by the soils department of Oregon State College and the Pacific Northwest Plant Food Assn., will be held at Corvallis, Ore., Jan. 22, according to Tom Jackson, extension soils specialist at the college.

The session will open at 9:30 a.m. and continue until 4:30 p.m.

The annual event is aimed at dealer education in soil testing, application of fertilizer for various types of crops, types of fertilizer to use on crops and soils, and other related fields, Mr. Jackson said.

Particular attention will be paid this year to soil testing, as both the college and the association recognize the need for increase in this work in the state of Oregon, he said.

Narrow-Row, High Population Corn Program Hits Top Yield

By HAROLD GUITHER
Assistant Extension Editor, University of Illinois College of Agriculture

URBANA, ILL.—A Grundy County farmer who defied traditional corn-growing methods launched a "sputnik" in his cornfield in 1958. For when James F. Holderman of Morris planted 530 acres of corn in 21-inch rows, he plunged corn-growing into a new, narrow "space" age.

At the same time, he may have attained the highest average yield ever produced on such a large acreage in Illinois—and possibly in the whole Corn Belt.

But perhaps the most amazing feature of this whole program is that part of this sandy land had practically been abandoned when Mr. Holderman bought it several years ago.

From samples taken carefully at several spots over 200 acres on the Holderman "home farm," Earl Leng, University of Illinois corn breeder, estimates that corn yields averaged about 175 bu. an acre last year. One yield check showed 212 bu. and another 202 bu. where the corn still stood well. Where the corn lodged badly, yields dropped to 143 bu.

Mr. Leng emphasizes that he carefully measured the sampling areas, tested the corn for moisture and figured the yields on a No. 2 shelled basis. On 300 acres on another farm, yields averaged about 135 to 140 bu. This field had a more sandy soil, but was also hit by hail and floods.

This corn-growing feat was not accomplished with ordinary hybrid corn. Mr. Holderman will quickly point out that most hybrids show lots of barren stalks when crowded together at 28,000 plants an acre. But several years ago Bob Copper, corn breeder with Producers' Seed Co., told Mr. Holderman about HY2 x 07, a single cross which he used in 1958.

When Mr. Holderman was doing his planning for 1958, two University of Illinois research developments gave him the ideas for this new program.

For several years, M. B. Russell and D. B. Peters, soil scientists, had covered some small corn plots with plastic during the growing season to study the corn's water use and water loss through evaporation. Their work showed that a large part of the summer rainfall and irrigation water applied during the growing season was lost through evaporation. Plots covered with plastic produced higher yields than plots receiving the natural rainfall, because the plastic prevented soil moisture from evaporating.

At the annual 1957 Farm Progress Show at Farmer City, A. L. Lang, another soil researcher from the University of Illinois, wanted to show how a farmer could grow as much on one acre as the average farmer could on two. So he applied 30 tons of manure and plowed down normal amounts of nitrogen, phosphate and potash. Then he planted four rows of corn and four rows of soybeans alternately in 24-inch rows.

Using the HY2 x 07 single cross, Mr. Lang produced 222 bu. an acre on the outside corn rows and 190 bu. on the inside rows. Standard planting rates without fertilization produced 107-bu. yields.

From these two research projects Mr. Holderman reasoned in this way: If narrow rows produce more than conventional rows, why not plant in narrower rows? And since corn plots covered with plastic lost less moisture by evaporation, he decided he could shade his soil at the same time with closely planted corn.

Although most of Mr. Holderman's sandy soil was very low in fertility when he started farming it, he has tested the soil and made plant food applications to make it productive. In 1958, with the help of M. E. Tascher, Grundy County farm adviser, with whom he has worked for many years, he worked out a special plan.

This plan called for plowing down 84 lb. of nitrogen, 55 lb. of phosphate and 55 lb. of potash an acre with the old cornstalks. At planting time Mr. Holderman added 325 lb. of 5-20-20 starter fertilizer. With the single corn cultivation, he applied ammonium nitrate to add another 67 lb. of nitrogen. So, besides manure left by hogs and also spread on some of the fields, he added 167 lb. of nitrogen, 120 lb. of phosphate and 120 lb. of potash.

But getting the seed and working out a fertilizer plan was only the start of the problems Mr. Holderman faced.

To plant corn in 21-inch rows, Mr. Holderman had to build his own planter. He took a 4-row and a 6-row planter and put together a 10-row wheel-driven planter with rows spaced 21 inches apart as he wanted.

And this planter really planted corn. "We planted 105 acres one day," Mr. Holderman relates, "and put on 17 tons of fertilizer besides."

The planter placed the fertilizer two inches out and two inches below the seed. It placed seed 10 to 11 inches apart in the row. Mr. Holderman figures that he put in 30,000 to 31,000 kernels an acre and obtained a plant population of 22,000 to 28,000. Mr. Leng believes the stand was closer to 28,000.

With planting finished, Mr. Holderman tackled the cultivation problem. He sprayed one pound of 2,4-D to the acre before the corn came up. Then he took his 4-row cultivator and added extension so that he could cultivate ten 21-inch rows at a time, as he had planted them. To handle the fertilizer, he built a platform over the back and sides of the cultivator.

"The fertilizer carried on the back platform counterbalanced the weight on the front and gave the back wheels more traction," Mr. Holderman points out. And the fertilizer platform was high enough to make loading easy from the back end of a truck.

What does Mr. Holderman think of this system, and what would he do in a dry year? "I'm going to do it again," he replied quickly, "and in a dry year I feel that this system will show even greater advantage. If there is enough moisture in the soil when we plant the corn, our close planting will keep it there."

Mr. Tascher, farm adviser, declares, "Jim has taken research and applied it in a new way. This could be the next big break-through in corn production if we can get the breeding into corn so that it will stand better. The machinery can be made. I've seen nothing like this in my 29 years of extension work."

Mr. Leng comments, "Here is a farmer who has broken away from planting his corn the width of the ox yoke and shows a good reason for doing it. This is a fantastic achievement when we remember that Mr. Holderman planted 500 acres and produced an average yield of at least 150 bu. This wasn't on just a few acres, where many of the big corn yields have been reported."

A. L. Lang, who also heads the Illinois soil experiment field work, points out, "We have always increased yields by narrowing rows. But 1958 was an unusual year. Moisture was high, and the water table was high. Such a program may work differently on other soils."

Northwest Nematode Workshop Scheduled

LOS ANGELES—More than thirty agricultural scientists will head up a workshop in Portland, Jan. 27-28, on the damage caused in the Northwest by nematodes — worm-like microscopic pests that cost the farmers, growers, and nurserymen of Idaho, Oregon, Washington, and Utah an estimated 10% of their annual production.

The purpose of the meeting is to give Northwest farmers and growers the latest scientific information on the damage and control of the pests. Reports from the workshop staff will cover forage crops, deciduous trees, vegetables, strawberries, hops and nursery stocks.

More than 350 persons are expected to attend. E. F. Bashor, Pacific Coast district manager of Shell Chemical Corp., sponsor of the meeting, said the group would include county agents and representatives of agricultural chemicals companies, in addition to farmers, growers and nurserymen.

This is the second Nematology Workshop sponsored in the West by Shell Chemical. The first was held in Yuma, Ariz., early in 1958, and covered nematode problems in the Southwest.

Panel members will include agricultural scientists from Oregon State College, the University of Idaho, the University of California, and Washington State College, as well as state departments of agriculture, and the U.S. Department of Agriculture.

At the opening of the meeting, Mr. Bashor will sketch the background and extent of the nematode problem in the Northwest. Chairmen of the four sessions during the two-day meeting will be: Dr. R. W. Henderson, assistant director, experimental station, Oregon State College, Corvallis; Dr. D. F. Allmendinger, vice director of the Western Washington Experimental Station, Puyallup; Dr. A. M. Finley, head of plant pathology, University of Idaho; and W. C. Leth, president of Oregon Horticultural Society and manager, Blue Lake Packers, West Salem, Ore.

Dr. L. C. Glover, senior district representative for sales development of Shell Chemical's agricultural chemical sales division, will serve as chairman of the Nematology Workshop.

Other panel participants will include:

(California)

Dr. M. W. Allen, plant nematologist, University of California and Dr. Duncan Carter, industrial research scientist, San Leandro.

(Idaho)

Dr. R. R. Romanko, plant pathologist, University of Idaho, branch station, Parma; C. E. Dallimore, plant pathologist, University of Idaho, branch station, Aberdeen; Dr. H. S. Fenwick, extension pathologist, University of Idaho, and A. W. Helton, assistant plant pathologist, University of Idaho.

(Oregon)

Dr. H. J. Jensen, plant pathologist, Oregon State College; G. E. Page, agricultural engineering department, Oregon State College; Frank McKennon, chief of bureau of plant industry, State Department of Agriculture, Salem; R. W. Every, extension entomologist, State Department of Agriculture, Corvallis; H. E. Morrison, associate entomologist, Oregon State College, and Ned Frandeen, county agent, Gresham.

(Utah)

E. C. Jorgenson, section nematologist, U.S. Department of Agriculture, Salt Lake City.

(Washington)

W. D. Courtney, Dr. J. Apt, Dr. A. J. Howitt and Dr. C. D. Schwartzke, all of the Western Washington Experimental Station, Puyallup; Dr. C. B. Skotland and E. C. Blodgett of the irrigation experimental station, Prosser, and Horace Shipmen, Toppenish.

(Nevada)

Dr. R. W. Landerdale, extension entomologist, University of Nevada, Reno.

Kansas State Gets Grant For Silica Studies

MANHATTAN, KANSAS—A $13,600 National Science Foundation grant will help to support investigations at Kansas State College on the nature and distribution of silica in plants.

The project leader, Francis C. Lanning, and associates have been working in this area for the past year and their findings were reported in an article on "The Chemical Nature of Silica in Plants," in a recent issue of Plant Physiology.

The researchers have found that silica deposited in wheat, corn, sorghum, sunflowers and bamboo is opal, while silica in lantana is both opal and quartz. By means of spodograms and microscopic examinations they have determined actual patterns and particle sizes of silica deposits in these plants.

Mr. Lanning, a chemist, says abundant deposits of silica occur in many plants. While silica does not appear to be essential for most plants, there is considerable evidence that silica deposits in certain plants are responsible for the resistance these plants have to insect pests and diseases.

4-H WINNERS—National winners in the 4-H Field Crops program are congratulated by Jacob White, president of Nitrogen Division, Allied Chemical Corp. The division, donor of awards for field crops, honored state and national winners at a banquet in Chicago during the 4-H Club Congress. Pictured are, left to right, Ralph Peterson, Kansas; Robert Mott, New York; Billy Denson, Mississippi; Gordon Mason, California; Tevis Williamson, Virginia, and Mr. White. National winner Jack King, Nebraska, is not pictured.

71% Favor New Corn Program, Final Tally Shows

WASHINGTON—Final results of the Nov. 25 corn referendum in a 26-state area show that 71.2% of the 357,169 farmers voting favored a new program calling for the elimination of corn acreage allotments and for a new method of setting support prices for 1959 and succeeding crops.

The final tabulation shows 254,262 (71.2%) voting for the new program and 102,907 (28.8%) voting for a continuation of the allotment program in effect on the 1958 crop.

The final favorable percentage is slightly higher than the preliminary figure of 71.1% favorable announced Nov. 26 on the basis of a preliminary total of 246,976 votes.

Under the new program, there will be no restrictions on acreages planted to corn in 1959 and later years. Price supports on a national average basis will be 90% of the preceding three-year average price received by producers for corn, but not less than 65% of parity. (For the 1959 crop, it is estimated that the average support price will be between $1.12 and $1.15 bu.)

The new program dispenses with commercial and non-commercial producing areas. Corn produced anywhere in the U.S. that meets quality and storage requirements will be supported at a rate based on the same national average level.

Illinois Project

URBANA, ILL.—Agricultural engineers at the University of Illinois are looking for new ways to apply anhydrous ammonia to the soil as it is plowed. Funds for this research are included in a $3,500 grant from the Texas Co., recently received by the university. F. B. Lanham, head of the department of agricultural engineering, where the studies will be conducted, says that library and laboratory studies will be made of new machines and methods for applying anhydrous ammonia, aqua ammonia and slurries of other liquid or dry fertilizer materials. Only where these studies show good results and promise will prototype machines be built and field-tested, Mr. Lanham says.

INSECT CONTROLS SAVE $8 FOR $1

STATE COLLEGE, N.M.—Insect control programs in 1958 saved New Mexico farmers and ranchers $8 for every $1 spent. This is the estimate made by the extension service of the New Mexico College of Agriculture and Mechanic Arts in its 1957-59 biennial report. Approximately $11,500,000 was spent by farmers and ranchers in 1958 to control insect pests of field crops, fruit, vegetables, and livestock, the report says. These programs saved farmers and ranchers almost $86,000,000, according to the estimates.

Colorado Crop Rotation Test Results Revealed

FT. COLLINS, COLO.—The value of crop rotations in Western Colorado's Grand Valley is demonstrated by results of trials conducted at test plots of the Upper Colorado River Basin project in Grand Junction, Colo.

Charles W. Robinson, project manager and Colorado State University experiment station staff member, said rotation-fertility systems are being tried to show what can be done with valley crops under slightly saline conditions on areas that do not require intensive reclamation treatments other than drainage.

Another objective is to control use of irrigation water to prevent an elevation in the water table and a re-accumulation of salt. In the trial area a drainage well is used to lower the water table from 3 or 4 ft. to 12 or 14 ft.

Three types of cropping now under study are: (1) a six-year rotation involving corn, sugar beets, barley and three years of alfalfa, (2) a three-year rotation of corn, sugar beets and barley, and (3) continuous cropping to either corn or sugar beets.

In both the six and three-year rotation trials, 16 fertilizer levels including nitrogen, phosphorus, potash and manure were used. To check effects of both fertilizer and alfalfa in the rotations, crops were grown with and without either fertilizer, or previous alfalfa plantings.

After four years the following comparisons can be made:

With corn, the best fertilizer combination is 200 lb. of nitrogen plus 75 lb. phosphorus an acre. Corn in the six-year rotation with alfalfa scored tops with a four-year average of 135 bu. an acre. A non-fertilized plot in the same rotation had an average of 101 bu.

In the three-year rotation, fertilized corn without alfalfa produced 112 bu. an acre for the same four years while an unfertilized plot produced only 95 bu. Fertilized corn in the continuous cropping system produced a four year average of 110 bu. an acre and the unfertilized corn produced 91 bu.

Similar satisfactory results were accomplished with sugar beets. The best fertilized level under all cropping systems was 100 lb. of nitrogen and 75 lb. phosphorus an acre.

Fertilized beets produced 25 tons an acre in comparison with 16 tons per acre from plots without fertilizer in the six-year rotation which included alfalfa. The three-year system without alfalfa produced 22 tons with fertilizer and 17 tons without fertilizer. Continuous cropping with fertilizer produced 18 tons of beets and unfertilized plots produced about 11 tons.

Use of alfalfa in the six-year rotation produced significantly higher yields. Alfalfa has the additional advantage of being a soil conditioner since its deep roots break up the soil and permit easier flow of air and water. Phosphated alfalfa produced an average yield of 4.6 tons an acre and had a higher phosphorus content than unfertilized alfalfa which yielded 3.5 tons an acre.

Mr. Robinson says increased yields show that use of fertilizer is economical and plays an important role in improving efficiency of the farming operation on a per-acre basis.

FEARLESS—These three men are eating spoonfuls of a new insecticide recently developed by the Bioferm Corp. of Wasco, Cal. and distributed by the Stauffer Chemical Co. The men, Robert A. Fisher, Bioferm's director of manufacturing and development; Thomas E. Freaney, manager of production; and James W. Howald, administrative assistant, are showing that the insecticide is safe for humans. Called Thuricide, the insecticide is deadly to many varieties of insects but won't harm humans, animals, fish or plants, the company says.

Monsanto to Put Computer-Controlled Plant on Stream

ST. LOUIS — Monsanto Chemical Co. will put the industry's first computer-controlled chemical plant on stream during 1959, Howard K. Nason, Monsanto vice president and general manager of the company's Research and Engineering Division, announced here.

"To the best of our knowledge, this will be the first chemical plant to use an electronic computer for the direct, on-line control of the over-all process," Mr. Nason said. "It will be installed in an existing manufacturing unit which is already highly instrumented by today's standards." Location of the plant and the process involved were not disclosed.

By use of the computer, Monsanto expects to achieve maximum productivity from its plant investment at minimum operating cost. The computer will achieve this by continually monitoring the process conditions, making numerous calculations and automatically adjusting the controls for optimum results, Mr. Nason said.

Simplot to Replace Burned Fertilizer Storage Building

CALDWELL, IDAHO — A prefabricated steel structure, 60 by 120 ft., will replace the Simplot Soilbuilders building destroyed by fire Dec. 9, announced Ralph Nyblad, manager of the firm.

The Soilbuilders division of the enterprises, owned by J. R. Simplot of Boise, has been using a warehouse formerly used by the Simplot Lumber Co. The new bulk storage building will have a 20 by 60 ft. structure adjoining it for handling mixed goods from the Simplot mixing plant.

Dr. R. E. Neidig, Former Balfour, Guthrie & Co. Vice President, Dies

SAN FRANCISCO — Dr. R. E. Neidig, former vice president of Balfour, Guthrie & Co., Ltd., died Dec. 29, 1958, following a minor traffic accident in San Bernardino, Cal., in which he suffered a fatal heart attack.

Dr. and Mrs. Neidig were motoring home from Mexico after being informed that their home in Rio Del Mar had been severely damaged in a fire.

He was a graduate of Cornell College, Mount Vernon, Iowa. He then joined the University of Idaho as a chemistry professor and assistant football coach. In 1927 he became associated with Consolidated Mining & Smelting Co. of Canada, Ltd., in an advisory capacity and became a member of their staff a few years later.

In 1946 he joined Balfour, Guthrie & Co., Ltd. as general manager of its fertilizer operation. At the time of his retirement in June of 1957 he was vice president.

California Proposes Control Of Cotton Leaf Crumple

SACRAMENTO, CAL.—At the request of cotton growers in the Bard-Winterhaven area of Imperial County, the California Department of Agriculture proposes to adopt a regulation establishing a cotton free district and period for the control of the cotton leaf crumple disease in the area.

A public hearing to consider the regulation will be held in the Bard Church Annex at Bard, Cal., on Jan. 15, at 9 a.m. Allen B. Lemmon, chief of the division of plant industry, will be the hearing officer.

Gilbert L. Stout, chief of the bureau of plant pathology, said cotton leaf crumple is a virus disease spread by an insect vector, the white fly, Bemisia tabaci. The disease causes serious damage to annual cotton grown in the area. Infected stub or perennial cotton is a reservoir for carrying the virus over from one annual cotton crop to another, and the regulation is necessary to provide a means of eliminating this source of the virus. Cotton is the only known host of this virus.

The proposed regulation would prohibit the cultivating, growing, or holding of cotton plants in any stage other than lint or seed, or seedlings not showing above ground, in any place within that part of Imperial County bounded in general on the west and north by the All American Canal and on the east and south by the California-Arizona state boundary (generally coinciding with the Colorado River) during the period commencing on the twentieth day of January and ending on the fifteenth day of March of each and every year.

Penick Appoints Plant Superintendent

NEW YORK—John H. MacDonald was recently appointed plant superintendent for the Lyndhurst, N.J. plant of S. B. Penick & Co. He has been a member of the plant technical staff since he joined the company a year ago.

The position of plant superintendent was held by Edward Lucas until his death in 1957. After Mr. Lucas' death, Charles M. Hogate, chief industrial engineer, served with the dual responsibility of acting plant superintendent.

Mr. MacDonald was associated with Merck & Co. in various administrative and technical positions for over 20 years. Immediately before joining Penick, he served as plant manager for the Nepera Chemical Co. at Harriman, N.Y.

Mr. MacDonald received his B.S. in engineering from Princeton University.

32 New Fertilizer Dealers in California

SAN FRANCISCO—Thirty-two new registrants joined the roster of firms desiring to sell commercial fertilizers in California during the three months from Sept. 15 to Dec. 15.

Of this group, 11 are from northern California, 10 from southern California, and the remaining 11 from out of state. This is the first time so large a percentage of the new firms has been listed at out of state addresses. Included in the group is a Holland based company, Pokon Thierensweg 30 in Naarden.

Also counted as one of the group is the Agricultural Products Co., of Buena Park, Cal., which was previously listed as Nutrilite Products, Inc., of which the firm is a division.

In addition to these, there were 11 companies registering during the period to sell agricultural minerals. These included one from southern California, eight from northern California, and two from out of state.

The Wilson & George Meyer & Co. of San Francisco is listed as a new mineral products jobber, the only new listing; and four more firms registered to sell auxiliary plant chemicals, including three in the southern half of the state, and one in San Jose.

Firm to Build Soil Conditioner Facility

THERMOPOLIS, WYO. — Greater Wyoming Mineral Corp. has purchased the W. H. Woodruff warehouses and packing plant at Basin. It will convert the certified seed facilities into a quarter million dollar alfalfa pelleting plant and soil conditioner blending and packaging industry to handle soil conditioner minerals mined and milled here.

Greater Wyoming Mineral Corp. has let a contract for the construction of a mill to grind the trace minerals deposits on its local properties. The firm is engaged in the milling, processing and packaging of agricultural and livestock mineral compounds here.

SUNOLIN

(Continued from page 1)

29th in the world using the Fauser-Montecatini processes.

In this process, liquid ammonia and carbon dioxide gas are reacted at 3,000 lb. pressure and 370° F. to form ammonium carbamate, which then decomposes to urea and water. This process will make the SunOlin plant one of the few in the U.S. that completely converts ammonia and carbon dioxide to urea, the company said.

Ammonia for the process will be purchased from Sun Oil Co.'s refinery. Carbon dioxide will be produced in a steam methane reformer which will be built and operated by SunOlin in conjunction with its new urea plant. In addition, the steam methane facilities will produce approximately 10 million cubic feet of hydrogen a day which will be sold to Sun Oil Co. for production of ammonia and other uses.

The urea will be sold through Olin Mathieson Chemical Corp.'s existing marketing organization which will act as exclusive sales agent for SunOlin.

Negotiations have been completed with the M. W. Kellogg Co. of New York for the design and construction of the urea plant, steam methane reformer and auxiliary facilities.

A $77,000 office building will also be built on the site. Construction has just started and completion is expected in March. It will serve as headquarters during the plant construction period and later will house the operating staff of the company. Contract for the construction of this building has been let to Nason & Cullen, Inc., of Philadelphia.

OPPORTUNITY

(Continued from page 1)

have done better on an average than they did in 1957.

On an average basis the cotton economy in 1958 produced almost one bale of cotton per harvested acre which was substantially higher than in 1957. During these same comparative years the cotton economy income was up more than $300 million. Prices per pound were up in virtually every cotton state, averaging better than 3¢ lb.

Previously, USDA and other government experts forecast that the new farm law, as it affects cotton, would result in a broad expansion of cotton acreage. Now it is understood from official and trade sources that this expansion will not amount to more than 30% of the total cotton acreage. This means that cotton production for next year is not going to be as large as anticipated and that the larger number of cotton producers will use their acreage allotment idle land in other crops such as corn and soybeans.

Under the sweetened up price support level for corn in the 1959 crop year cotton farmers—as for example in the Delta and in the big cotton farms east of the river—may find advantage in corn as non-acreage compliance crop.

Corn is another commodity and another sales prospect. High yields last year, according to USDA Beltsville experts, caused depletion of nitrogen in corn farm soils. These impartial observations within Beltsville plant should do little less than stimulate the nitrogen sales force to move aggressively to the advantage of its customers in the Corn Belt.

On the other hand, these same Beltsville technicians say that while high yields reflect greater losses in nitrogen from the corn and cotton belt soils last year, it is urgent that a true adequate balance be maintained between all plant food ingredients. Heavy crop outturns probably would deplete soil nitrogen first, but if it is to be expected that farmers can come through with adequate crops next year, they must balance out their plant food diet with adequate potash and phosphorus.

The farm community is hurting between costs of things they buy and their receipts—but it is evident that their net income per unit of production is not declining.

It is evident from these data that the farm community needs cost-reducing influences such as plant food and pesticidal chemical more than ever. Soil strength may only be replaced by the low cost farm plant foods and protective chemicals.

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Manitoba's Annual Crop Losses from Weeds Average $33 Million, Group Told

WINNIPEG—Manitoba crop losses due to annual weeds alone average $33,000,000 each year, Dr. George Friesen, associate professor, plant science division, University of Manitoba, told the annual conference of Manitoba agronomists.

Dr. Friesen explained that a further study on farm fields in 1958 indicated that spraying grain crops to control weeds reduced losses to a considerable extent.

H. A. Craig, Manitoba Department of Agriculture, told the meeting that during 1958 Manitoba farmers treated 2,089,000 acres of field crops with 2,4-D or MCPA for the control of weeds. This is a reduction of 30% compared to the previous year.

This reduction, Mr. Craig said, was due largely to unfavorable weather conditions during the early summer. The use of TCA in controlling green foxtail in flax underwent a reduction of 70%.

Chemicals were largely applied by ground treatment of which 2.6% were in the form of dust. Aircraft were used on less than ½ of 1% of the acreage.

Eighty one percent of the 2,4-D used was of the ester formulation and 19% of the amine formulation. Of the MCPA used 22% was ester, 58% amine and 20% sodium salt. Some 565 000 lb. of soil sterilant herbicides were used in the control of the deep rooted perennial weeds.

D. A. Brown, agronomist with the Canada Experimental Farm, Brandon, reported on tests of a new chemical to control wild oats. It was explained at the meeting that the time is rapidly approaching when the agronomists may be able to recommend some type of effective chemical control of wild oats. This will depend upon the results of further experiments and field trials. The meeting emphasized that the cultural methods of weed control must not be underestimated.

W. B. Fox, Chipman Chemicals, Ltd., illustrated how chemicals could be effectively used on noncrop farm areas. Weed control in pastures, drainage ditches, around buildings, along road allowances and driveways may be effectively achieved by the selecting of proper chemicals.

John Howden of Green Cross Chemicals, pointed out the use of products such as Dalapon, TCA, Simazine, and Amitrol. These chemicals, he explained, have specific purposes which should be investigated by farmers to combat weed problems of couch grass, perennial thistles and other weed hazards.

Professor L. K. Shebeski, head of the plant science department at the University, reported that experiments had shown that the protein content of wheat and barley was significantly higher in fields kept weed-free as compared to weed-infested fields.

Two West Virginians Join 150-Bushel Club

MORGANTOWN, W.VA. — Two West Virginia growers—including a 13-year-old Clay County farm boy—have been awarded "Certificates of Membership" in the West Virginia 150-Bushel Corn Club and 12 others have been awarded similar certificates in the West Virginia 100-Bushel Corn Club, it was announced here recently by R. J. Friant, extension agronomist at West Virginia University. The top 10 growers also received ribbon awards.

These growers competed in the sixth West Virginia Hybrid Corn Yield Contest sponsored by the agricultural extension service and the department of agronomy and genetics, College of Agriculture, Forestry, and Home Economics at West Virginia University.

Lloyd Fitzwater, Clay, the 13-year-old farm boy, produced 151.85 bu. an acre of shelled corn containing 15% moisture and C. W. Ferguson III, Wayne, Wayne County, 151.70 bu.

According to Mr. Fitzwater's report, the land used was in hay the past three years. It was limed with three tons of pulverized limestone an acre according to a lime requirement test. Four tons of manure an acre were applied in March and the land was plowed in late March and early April. Three hundred pounds of 12-12-12 fertilizer an acre were plowed under with the manure. The land was disked three times and harrowed three times with a drag harrow.

The corn was planted April 28 in rows 38 in. apart and 8 in. between plants. One hundred and fifty pounds of 10-10-10 fertilizer an acre were drilled in the row. The crop was side-dressed with another 150 lb. of 10-10-10 fertilizer an acre at the time of the last cultivation when the corn was three feet high. This made a total equivalent of 660 lb. of 10-10-10 fertilizer an acre applied in addition to the manure.

Hercules Directors

WILMINGTON, DEL. — Five new members have been elected to the board of directors of Hercules Powder Co., it was announced by Albert E. Forster, president and board chairman. The new posts were effective Jan. 1. They are: Edward G. Crum, general manager of the Virginia Cellulose Dept.; G. Fred Hogg, general maanger of the Naval Stores Dept.; Dr. John H. Long, general manager of the Paper Makers Chemical Dept.; Henry A. Thouron, general manager of the Synthetics Dept.; and J. H. Tyler McConnell, secretary of the company.

Kinds of Fertilizers Used, by Regions, in 1,000 Tons[1]

Kind	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Territories	Total Consumption	Total Change from year ended June 30, 1957
MIXTURES	379	1,722	4,586	3,285	1,191	1,778	630	75	381	225	14,252	-451
CHEMICAL NITROGEN MATERIALS	13	71	725	363	489	523	449	231	861	116	3,841	135
Ammonia, anhydrous	---	3	22	57	139	51	140	41	122	2	577	124
Ammonia, aqua	---	---	---	2/	8	---	5	31	289	51	384	3
Ammonium nitrate3/	7	30	126	134	243	285	106	62	103	---	1,096	-9
Ammonium sulfate	1	6	11	97	12	11	98	57	227	53	573	57
Nitrogen solutions	1	4	83	59	82	9	25	7	47	---	317	71
Sodium nitrate	1	9	239	1	2/	130	49	2/	2/	2/	429	-64
Urea	1	3	4	11	4	1	19	19	27	10	99	-10
Other4/	2	16	240	4	1	36	7	14	46	2/	366	-37
NATURAL ORGANIC MATERIALS	25	36	21	38	12	2	8	5	321	2/	468	-12
Dried manures	5	13	4	6	4	1	3	1	260	2/	297	3
Sewage sludge, all	7	14	8	29	8	1	3	4	55	2/	129	-2
Tankage, all	2	8	4	2/	2/	---	---	---	1	---	15	-4
Other5/	11	1	5	3	2/	---	2	2/	5	---	27	-9
PHOSPHATE MATERIALS	33	85	104	727	557	248	217	176	251	13	2,411	-5
Ammonium phosphate2/	---	1	2	14	149	4	91	76	135	2	474	74
Basic slag	---	---	20	---	---	132	3	---	---	---	155	-8
Phosphate rock & colloidal phosphate	2/	7	18	565	218	18	18	2/	2/	3	847	11
Superphosphate: 22% and under	32	70	50	58	42	75	59	16	72	5	479	-81
" Over 22%	2/	3	6	75	132	6	43	73	28	3	369	-5
Other4/	1	4	8	15	16	13	3	11	16	---	87	4
POTASH MATERIALS	4	8	79	191	45	49	31	2	13	13	435	-26
Potassium chloride	2	5	35	187	45	41	29	2	6	11	363	-13
Other4/	2	3	44	4	2/	8	2	2/	7	2	72	-13
PRIMARY NUTRIENT FERTILIZERS	454	1,922	5,515	4,604	2,294	2,600	1,335	489	1,827	367	21,407	-359
SECONDARY & TRACE NUTRIENT MATERIALS	2/	5	98	3	3	5	4	44	776	2	940	-3
Gypsum	2/	4	96	2	---	2	---	35	743	2/	882	-9
Other5/	2/	1	2	1	3	3	4	9	33	2	58	6
NOT CLASSIFIED	1	0	1	0	1	0	2	0	6	0	11	---
ALL FERTILIZERS	455	1,927	5,614	4,607	2,298	2,605	1,341	533	2,609	369	22,358	-351

1/ Due to rounding, totals of items may not add to column or class totals.
2/ Less than 500 tons.
3/ Minor quantities may have been used for other purposes than fertilizer.
4/ Includes quantities undesignated by kind.
5/ Includes all grades: 11-48, 11-50, 13-39, 16-20, 20-52, 21-53, and 27-14 reported.

Primary Plant Nutrient Consumption, by Regions, 1957-58

Region	Nutrients in mixtures: N	Available P_2O_5	K_2O	Total	Nutrients in mixtures and materials: Consumption N	Available P_2O_5 2/	K_2O	Total	Change from year ended June 30, 1957: N	Avail. P_2O_5	K_2O	Total
New England	27	45	47	119	32	53	49	134	2	4	3	9
Middle Atlantic	98	206	191	495	122	224	197	543	5	-3	3	5
South Atlantic	219	429	473	1,121	399	448	500	1,347	-19	-15	-4	-39
East North Central	195	519	504	1,218	335	598	619	1,552	37	13	7	57
West North Central	95	220	152	467	349	356	179	884	64	2	3/	66
East South Central	84	203	192	479	256	241	220	717	-31	-21	-16	-69
West South Central	55	97	63	215	267	153	81	501	36	-9	-3	24
Mountain	10	13	3	26	109	76	4	189	19	6	3/	26
Pacific	38	43	24	105	339	114	38	491	30	7	2	39
Continental U. S.	821	1,775	1,649	4,245	2,208	2,263	1,887	6,358	143	-17	-8	118
Territories	27	14	27	68	56	17	34	107	-14	-7	-9	-30
Total: 1957-58	848	1,789	1,676	4,313	2,264	2,280	1,921	6,465	129	-24	-17	88
1956-57	844	1,817	1,682	4,343	2,135	2,304	1,938	6,377	0	0	0	0
1955-56	797	1,785	1,655	4,237	1,933	2,247	1,875	6,055	-202	-57	-63	-322

2/ Includes, as available P_2O_5, 2 percent of the colloidal phosphate and 3 percent of the phosphate rock marketed for direct application.
3/ Less than 500 tons.

THESE TABLES contain information which was part of the annual year-end report of the U.S. Department of Agriculture concerning fertilizer use in the U.S. during the fiscal year 1957-58. The material was prepared by Walter Scholl, Marion M. Davis, Anna W. Woodward and Esther I. Fox, Fertilizer Investigations Branch, Soil and Water Conservation Research Division, Agricultural Research Service, USDA at Beltsville, Md. The top table shows the kinds of fertilizers used in the U.S. and are recorded by region. The lower table shows consumption of primary plant nutrients in the U.S. during the fiscal year, also shown by region. Complete coverage of the USDA's report appeared on page 1 of the Jan. 5, 1959, issue of Croplife.

Mississippi Agronomist Urges Fertilization, Soil Tests for Cotton

STATE COLLEGE, MISS.—Using enough fertilizer goes a long way in making the maximum profit from growing cotton, said L. E. Gholston, associate agronomist of the agricultural extension service, Mississippi State College.

"Cotton can make more money an acre than any other crop that can be grown on this land. We have no substitute crop for it in the South today. It will take a lot of bad treatment and still make money, but responds well to good management," he declared.

Mr. Gholston recommended soil testing early to determine the specific lime and fertilizer requirements in plenty of time to sell and apply these materials.

Net profit figures of from five to eight dollars for every dollar invested in fertilizer when properly used are reported by experiment stations. These are average returns per dollar invested, and will vary some depending on the cost of the fertilizer and the market value of the crop.

"Fertilizer is one of the farmer's best buys. It is almost unbelievable that fertilizer prices have gone up so little," Mr. Gholston stated.

Fertilizer prices are up only 51%. At the same time, seed costs have risen 118%; while an advance of 316% has occurred for such farm costs as wages, tractors and other farm machinery.

The smart cotton farmer in 1959 will figure on "how much of this cheapest item can he use and make it pay," and not on "how little can he get by with," the agronomist pointed out.

While he strongly recommends soil tests, Mr. Gholston gives as a guide the general fertilizer recommendations for cotton from the Mississippi Agricultural Experiment Station:

In the Delta, farmers should apply 90 to 100 lb. of nitrogen per acre prior to planting. If irrigation is practiced, they should increase nitrogen rates by 20 to 25%.

In the hills sections, the general recommendation is 72 lb. nitrogen, 48 lb. phosphate and 48 lb. potash an acre. On above average cotton soil, increase the rate by 25 to 30%.

One-half to two-thirds of the nitrogen and all of the phosphate and potash should be applied prior to planting. Then application of the remaining nitrogen as sidedressing should be completed not later than the middle of June.

Several other good management practices can, if followed, make cotton fertilizer work better for the farmer. He should begin by selecting the deepest and best drained soil on the farm for cotton. A good job of seedbed preparation is then in order, using a recommended variety. He should cultivate enough to control weeds and grasses, which may eat up needed water and plant food. An effective insect control program should then be utilized. Irrigation should be used where practical and the cotton should be picked and ginned for high grade or quality.

HERCULES EXECUTIVE RESIGNS

WILMINGTON, DEL. — Philip B. Stull has resigned as a vice president and director of Hercules Powder Co. He also resigned as a member of the executive committee. Mr. Stull requested that he be relieved of these responsibilities since he plans to elect early retirement under the company's pension plan. Until then he will continue in the company's employ as a special assistant to A. E. Forster, Hercules president, concerned primarily with developing the company's foreign business, particularly in the European common market.

FARMERS GROW MORE CORN

WASHINGTON—Farmers around the world grew more corn last year than ever before in history, reported the International Federation of Agricultural Producers. Indications are that the total world production may be about 7,100 million bushels. The U.S. Foreign Agricultural Service says this would be 530 million bushels above the previous record high set in 1956. The record U.S. crop of 3,800 million bushels is more than half the world total but large crops also are reported for Russia and Mainland China. These three nations grow two-thirds of world corn production. The Soviet Union's ranking position in corn is a recent development as the Russian 1950-54 average is estimated at only 190 million bushels. Corn supplies for 1958-59 in U.S. are more than 5,200 million bushels. Domestic requirements for the season are forecast at 3,200 million bushels. The big corn crops in Russia and China may mean these countries will be exporting more corn than usual.

Nuclear Reactor Proposed To Sterilize Farm Land

LOS ANGELES—Two scientists at the University of California at Los Angeles have proposed a portable nuclear reactor for sterilizing agricultural land.

Dr. Samuel G. Wildman and Dr. Amos Norman told the American Nuclear Society in Detroit that such a reactor may prove to be a practical, economical means of treating soil prior to planting.

Gamma rays and neutrons from the reactor bombarding the soil would kill and prevent reproduction of such parasites as nematodes, fungi and insects which afflict crop plants and reduce yields, they said, as well as prevent the germination of weed seeds.

They said that since the portable reactor would be operating (probably by remote control) in relatively unpopulated areas, unwieldy shielding could be reduced substantially.

Thus it would probably be of much simpler design than stationary ones. Any radioactivity induced in the soil would be short-lived enough not to constitute a hazard either in the soil or in crops grown in it.

The portable reactor should be designed to move at about six or seven miles per hour, irradiating 100 square feet of soil per second to a depth of six inches. The UCLA scientists estimated that the reactor could be designed to be used in field treatment at a cost of about $70 an acre.

New Secretary

LEXINGTON, KY.—Bruce Poundstone, head of the Kentucky Department of Feed and Fertilizer, has announced his resignation as secretary-treasurer of the Association of Southern Feed and Fertilizer Control Officials. He has been succeeded by Maurice Rowe, Virginia Department of Agriculture, Fertilizer, Lime and Motor Fuel Section, 1122 State Office Bldg., Richmond 19, Va.

PATHOLOGIST RETIRES

AMHERST, MASS.—Dr. Linus H. Jones, plant physiologist at the University of Massachusetts for more than 32 years, announced his retirement effective Jan. 3. He reached his 65th birthday on Christmas Day. "Future plans include nothing more than a little writing and the opportunity to renew friendships dimmed by too much space and too little time," says Dr. Jones. A member of the experiment station staff, Dr. Jones first held an industrial fellowship in 1925-26 and in the latter year was assigned to the botany department as a plant physiologist. This year, his work was transferred to the department of entomology and plant pathology.

AGRONOMY AWARD — William J. Weeks, Jr., right, above, Florence, N.C., was the first recipient of the agronomy achievement award, which will be made annually to the outstanding student in the field of agronomy at Clemson Agricultural College. The award, presented recently, is sponsored by the National Plant Food Institute and includes a cash grant of $200. In addition to the grant, Mr. Weeks received a key engraved with his name and a plaque which will be retained in the offices of the Agronomy Department. Presenting the award above is Dr. Samuel L. Tisdale, southeastern regional director of the institute.

Fertilizer, Chemical Plants Add to Columbia River Area Building Boom

PORTLAND, ORE. — Along both shores of the Columbia River from Tidewater to head of navigation at Pasco and Kennewick, Wash., a multi-million dollar building boom is going on.

Chemicals, grain and petroleum are moving in unprecedented volume up the river. Just recently options have been taken in Kennewick by the Bunker Hill Co. and California Spray-Chemical Corp. for fertilizer plants. The Graham-Wilhelm Chemical Co. has also announced that it will be building a new $150,000 fertilizer plant in Pasco.

Attracted by a ready market, low cost hydro-electric power and low freight rates, more companies are expected to move to the area in the near future.

Phillips Pacific Chemical Co. is investing $15 million in an anhydrous ammonia plant beside the Columbia near Kennewick. The plant will manufacture fertilizer for distribution to farmers of eastern Oregon and Washington and Idaho.

Several industrial firms are investigating construction of chemical plants to utilize vast limestone deposits on the Snake River near Lewiston, Idaho. Low barge rates would also make feasible transportation of bulk limestone to existing plants in the Vancouver-Portland area.

Manitoba Agronomists Forecast 'Hopper Activities for 1959

WINNIPEG—Grasshopper infestations forecast for Manitoba for 1959 as compared to 1958 show a decrease in areas infested, but a slight increase in severity of infestations in some areas, according to reports presented to the Manitoba agronomists' conference.

To control sugar beet root maggots 900 acres were treated with fertilizer impregnated with 1% heptachlor with good results. The insect is spreading to other areas where beets are grown on sand soil.

Cutworms occurred in all areas with 4,247 acres treated mostly with dieldrin. Some band spraying was done with good results.

Webworms were general with 20,700 acres treated for this pest. The only comparable previous outbreak was in 1941. Toxaphene was used at 1½ to 3 lb. actual per acre.

Aster Yellows, which was the most important disease problem in the northern great plains area in 1957, was inconspicuous in 1958. This was because the population of the six-spotted leafhopper, the insect that carries the disease, was much lower and fewer individuals carried the disease than in 1957. Studies showed that the insects did not overwinter in Manitoba but were carried in on strong winds from the south. It was found that two species of parasites attack the leafhopper in Manitoba.

CECIL B. MAYFIELD DIES

SHERMAN, ILL.—Cecil B. Mayfield, for many years owner of the Mayfield Feed and Seed Corn Laboratory at Lincoln, died recently at the age of 61.

AWARD WINNERS—Ernest Hart, San Jose, Col., center, president, Food Machinery and Chemical Corp., J. Delbert Crummey, Fresno, left, sales manager, and Elmer Hansen, right, Fresno, district manager, shown with the Award for Industrial Partnership in Modern Agriculture presented to Food Machinery and Chemical by the Central Valley Empire Assn. at the National Salute to Agribusiness in Fresno recently. The purpose of the salute was to call attention to the fact that modern mechanized and chemicalized agriculture is one of industry's biggest customers, a spokesman said.

USDA

(Continued from page 1)

bination provides the needed vitamin.

Dalapon and its related compounds also readily attach themselves to the same site on the enzyme as that normally reserved for pantoate. When this happens, enzymatic action to combine pantoate and beta alanine is stopped, and synthesis of the vitamin cannot take place.

To conduct these experiments, it was necessary for the scientists to isolate the enzyme. This enzyme is so small that it cannot be seen even with the aid of an electronic microscope. But its presence in the test tubes was assured by the reaction shown when dalapon was used to inhibit its action or when pantoate was applied to overcome the action of the herbicide.

One of the new chemicals that has been developed, and is being laboratory-tested, is a compound comprising part of the chemical structure of pantoate plus the addition of a chlorine atom. The chlorine replaces the hydroxyl groups that pantoate normally contains.

The scientists found that the new compound retained its ability to attach itself to the enzyme, but the chlorine prevented enzymatic action to combine it with the beta alanine. Thus, in laboratory tests, the changed pantoate compound produced the same lethal effect as dalapon and its derivatives.

GEORGE C. MARTIN DIES

CASTRO VALLEY, CAL.—George C. Martin, owner of Martin's Nursery in Castro Valley, died suddenly just before his 51st birthday in December. Mr. Martin started the nursery about 10 years ago, and had been operating it together with his wife. Mrs. Martin continues to manage the business under the same policies, at 20115 Forest Ave.

Nitrogen on Flax Showing Results

FARGO, N.D.—Commercial nitrogen is showing promise as a way to boost flax yields which in North Dakota have been averaging less than 10 bu. per acre.

In summing up the 1958 trials in four east-central counties, J. C. Zubriski, North Dakota Agricultural College soils specialist, says 30 to 40 lb. of nitrogen per acre gave the most substantial hike in flax yields. While data are not complete enough for definite conclusions right now, the belief is further research will soon provide information enough for solid recommendation on fertilizing flax.

NAMED RESEARCH AIDE

NEWARK, DEL.—Dr. George T. Felbeck, Jr., has been named assistant research professor of agronomy at the University of Delaware, announced George M. Worrilow, dean of the school of agriculture.

PUNCHY PROMOTION — The old line, "You can't punch your way out of a paper bag," has been used as the basis for a popular stunt on the "County Fair" NBC network TV show. It has also proved a good promotion for Union Bag-Camp Paper Corp., which supplied the bags. Several sports personalities, including James J. Braddock, former heavyweight boxing champion (at left), have been unable to punch their way out of the Union Bag, six-ply multiwalls. With Mr. Braddock is Herbert Landon, production supervisor of the show.

James I. Harper in New Sun Oil Post

PHILADELPHIA—Appointment of James I. Harper as coordinator of chemical manufacturing and sales for Sun Oil Co. has been announced by Clarence H. Thayer, vice president in charge of manufacturing.

Mr. Harper also is president of the recently organized SunOlin Chemical Co. which was created last fall as a joint subsidiary of Sun Oil Co. and Olin Mathieson Chemical Corp.

Mr. Harper, a graduate of Rensselaer Polytechnic Institute, came to Sun Oil Co. in November, 1936, as a group leader in the research and development division and was promoted to assistant director in May, 1953. He was named assistant superintendent — petrochemicals at the Marcus Hook (Pa.) refinery in June, 1956.

Wyoming's First Sulfuric Acid Plant Now Operating

RIVERTON, WYO.—Wyoming's first sulfuric acid manufacturing plant to produce acid for sale to fertilizer manufacturers and other industries has started operations. The plant, owned by Fremont Minerals, Inc., is located at Riverton and was constructed at a cost of $750,000. Its rated capacity is 100 tons per day. It will be operated by the chemical division of Fremont Minerals.

The plant is utilizing the "contact" process, which produces acid through the burning of pure sulfur and conversion of the resulting gases. Sulfur for the plant is obtained through local Wyoming suppliers who recover it from sour natural gas. The particularly pure sulfur thus obtained contributes to a high-quality acid product.

ALABAMA FERTILIZER SALES

MONTGOMERY, ALA.—Fertilizer sales in Alabama for the month of November totaled 29,452 tons, reported A. W. Todd, commissioner, Alabama State Department of Agriculture and Industries, Division of Cooperatives. This figure represents an increase of 1,535 tons over November, 1957. Most popular grade was 0-14-14 with 14,870 tons. Most popular material was 18% superphosphate with 2,026 tons.

Offer your customers
an agronomically superior fertilizer
with **long-feeding, insoluble nitrogen**

Use Du Pont UAL-37

Growers in recent years have shown an ever-increasing interest in fertilizers that furnish slower-acting, long-feeding nitrogen. They know the value of nitrogen that nourishes plants at the rate required for maximum growth and yields—that resists leaching and remains in the root zone where plants readily absorb it.

Du Pont UAL-37 furnishes nitrogen in three forms—ammonia, soluble organic (urea), and insoluble organic. One-fifth of the nitrogen is the insoluble portion. It's of proven high agronomic value, particularly for long-season crops and grasses.

The insoluble nitrogen supplied in UAL-37 is long-feeding, of the ureaform type. Its continuous rate of nitrification yields available plant food long after soluble forms have been exhausted.

Take advantage of the growing trend toward long-feeding fertilizer materials with UAL-37. Du Pont specialists can give you at-the-plant advice, and stand ready to assist you in profitably formulating mixtures containing UAL-37. For further information on UAL-37, fill out and mail the coupon.

HERE ARE OTHER IMPORTANT ADVANTAGES OF DU PONT UAL-37

- Produces mixed goods of outstanding physical properties, because the ureaform in the mixture has a specific conditioning effect.
- Safe in granulation . . . no danger of flash fires and less stack. Gives firm, uniform, stable granules, best for storage and application.
- Suitable for either batch or continuous mixing.
- Gives mixed goods better "feel"—minimizes caking, segregation, and dusting.
- Won't corrode regular fertilizer manufacturing equipment, including ordinary steel and aluminum.
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Special Merchandising Section

Better Selling

Marketing News and Features

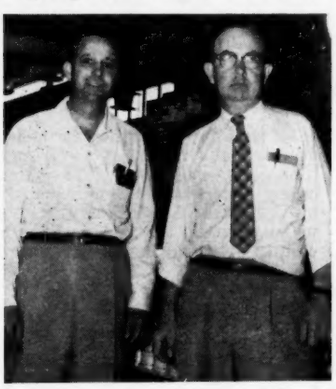
Breaking Own Sales Records Is Habit for Colorado Store

By JESS BLAIR
Croplife Special Writer

Breaking their own sales record has become a common occurrence for the Simpson & Co. Farm Store in Colorado Springs, Colo. Since establishing their big 90 by 24-ft. store a few years ago, the sales increase has been steady. During the last two years this amounted to 50%.

Simpson & Co. is one of the largest farm stores in southern Colorado, and serves a large group of ranchers and farmers. Manager of the firm is Alfred L. Owens, who not only oversees the company's many sales outlets, but takes a very personal interest in the farm store. He works very closely with Omer Booth, who is retail manager of the store.

They are constantly studying ways of giving better service to customers and improving the store. They keep a close check on all items, and overlook no sales opportunity.



OMER BOOTH, left, manages the Simpson & Co., farm store in Colorado Springs, Colo. He is shown here with the assistant general manager.

"We've had to watch the slow-moving goods," Mr. Owens said. "In spite of all precautions, a manager will sometimes load up with items that won't move. When that happens, we put the merchandise on the lower paying shelves and sell it, even if it means reducing prices."

The extremely long and narrow store was especially arranged so that customers could see all the merchandise. The outside door opens near the rear, so that when people come into the building they must walk all the way to the cash register at the other end.

"And you will notice," said Mr. Owens, "that when they pass between rows of attractively arranged merchandise, most of them stop and look at different items, which results in many extra sales."

The managers have tried to make the place a one-stop shopping center for both rural and town people. Some of the major items are seeds, garden tools and supplies, insecticides, fertilizer, farm hardware, livestock remedies, poultry and pet supplies and a hundred other articles. Mr. Owens believes that it is now one of the very largest farm stores in this part of the country.

"The emphasis is not on goods alone," he said, "but on selling. The old cracker barrel days are gone. People no longer come in to sit down and chat. They're in a hurry, so you've got to have eye-appeal to the store. Put everything out where it can be seen, and place related items close together. If a rancher buys some insecticide to get rid of flies around the barn, he will see the sprayers and maybe take one of them also."

SIMPSON & CO. Farm Store in Colorado Springs, Colo., is housed in a long low bulding, above, that was especially arranged so that the customers could see all the merchandise. At right, attractive displays are featured at Simpson & Co. Farm Store, with related items being placed close together. They are re-arranged regularly for the most pleasing effect.

★ ★ ★

Mr. Owens uses this method in all arrangements, and periodically changes the wall shelves and island displays for seasonal goods. Before garden planting time, he advertises his seeds and gets them out early.

(Turn to HABIT, page 14)

Dealer's Success Story Has Many Chapters

By the end of its fourth year in business the Farm Chemical Co. of Longmont, Colo., was one of the largest fertilizer plants in northern Colorado. Its short spiral to success was accomplished by several methods which owner George Fleming instituted when he set up the firm in 1954.

"This seemed a good area," he said. "The water is practically unlimited as long as snows fall in the mountains, and the soils have been farmed long enough to require constant fertilization."

Mr. Fleming, a graduate of the University of Nebraska, had spent many years in the sugar business and was the superintendent of a large sugar plant in Ohio when he decided to go into business for himself.

Starting on a small scale, he bought the raw ingredients and formulated his own mixtures. He put in a large laboratory and based the finished fertilizers on what the soil tests showed. The most popular mixtures are 12-24-0, which is for sugar beets; 16-20-0 and 10-16-8, with the last being for vegetables.

From his extensive tests, Mr. Fleming found that the soils were often deficient in iron, which was causing some very anemic lawns. He formulated a special fertilizer which carries 4% iron and called it Wonder-Grow. This is very popular and is now being sold in southern Wyoming and western Kansas, as well as most of Colorado.

The main field fertilizers are marketed under the brand of Long's Peak Fertilizer. Mr. Fleming also has a mixture containing 4% iron which is popular for certain crops.

In addition to the fertilizer, he is a distributor for a national insecticide manufacturer and carries both field and garden lines. He has set up several dealers for both fertilizer and other farm chemicals, but they are also sold retail in the Longmont area.

In building his business to its present prosperity, Mr. Fleming used several methods that might prove successful in any line.

First, he learned all he could about the soils of the area.

"The laboratory has been absolutely essential," he said. "You must be able to analyze for trace elements as well as the more common ones. We've found an iron deficiency here and also a lack of potash. In western Nebraska we found a zinc deficiency in some soils and were able to formulate a fertilizer to overcome it. And with any laboratory such as this you need an expert chemist to take the guesswork out of making recommendations."

Mr. Fleming keeps a card on every soil sample analyzed. Then if the field is analyzed again the next year or two, this is also recorded. In talking to a farmer about fertilizer, this card is discussed and the proper kind of fertilizer recommended.

Mr. Fleming keeps outside salesmen, and has one in particular who works with dealers. He visits farms with the dealer and takes soil samples to be brought back to headquarters.

"Not every dealer selling fertilizer is doing a good job," said Mr. Fleming, "so we work with him until he understands the products and how to use them. If we sell him on the idea, he will do a good job of pushing our fertilizers."

The firm is one of the most widely advertised in the state. Mr. Fleming uses all kinds, including newspaper, radio, TV, and the agricultural magazines. He also uses billboards and sends letter to dealers and customers.

"If you have a product that will help people make more money, the thing to do is to advertise and keep hammering away at it."

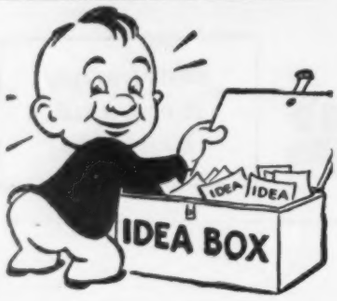
He also has demonstration plots which are located in several areas. This is an effective method because farmers can see the difference in proper fertilization and no fertilizer at all. Some of these plots have been in cooperation with the large suppliers, who also help out on advertising.

In addition to his own business, Mr. Fleming takes an active part in agricultural and civic affairs of the area. He is now the president of the Rocky Mountain Plant Food Assn., and works with the Colorado State College and the state extension service.

His plant which started out as a small building is gradually expanding. He built a warehouse last year and is gradually adding other facilities at the location a short distance south of Longmont.

Though he has dealers in parts of three states, the home store sells directly to a large area around Long-

(Turn to STORY, page 15)



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

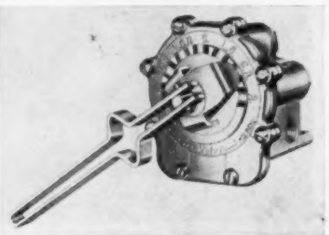
No. 6853—4-Wheel-Drive Tractor Loader

The Frank G. Hough Co. announces a rubber-tired, four-wheel-drive model "H-90 Payloader." The unit was designed to replace the company's former HO model. The unit's load carry capacity is 9,000 lb. at travel speeds. Both gas and diesel power units are offered. Buckets to handle materials of various weights are

available in sizes from 1½ to 5 cu. yd., S.A.E. rated bucket sizes. A "low profile" front shroud gives the operator improved visibility, the company says. For complete information, check No. 6853 on the coupon and mail to this publication.

No. 6855—New Sprayer Handle

Spraying Systems Co. announces a change in its overall line of TeeValves for selective spray control in boom spraying. Design of the operating control handle has been modified to provide a hand grip stop, so that position of the operator's hand will remain clear of the valve, preventing



accidental chafing of the fingers, the company said. Selection of valve setting is made by rotating the control handle to any desired indexed position. For complete information, check No. 6855 on the coupon and mail to this publication.

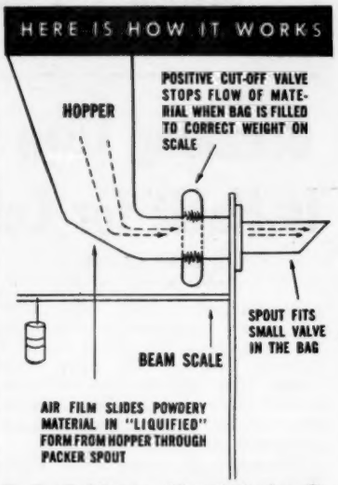
No. 7307—Aluminum Scraper

An all-aluminum hoe which can also be used as a scraper has been introduced by the Aluminum Ladder Co. The tool can be used for removing or scraping dry chemicals, feedstuffs and other materials from vats, tanks, barges, storage bins and other containers. The hoe is lightweight,

non-corrosive, non-splintering and non-sparking. The blade is 6 in. deep and comes in 17 to 20 in. widths. For details, check No. 7307 on the coupon and mail.

No. 6843—Valve Bag Packer

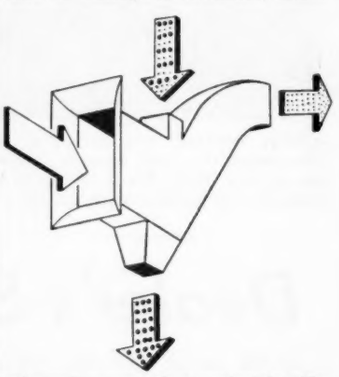
The fluidizing air principle of conveying powdery and free flowing materials is employed in the new Air-Pac valve packer introduced by the


HERE IS HOW IT WORKS
HOPPER
POSITIVE CUT-OFF VALVE STOPS FLOW OF MATERIAL WHEN BAG IS FILLED TO CORRECT WEIGHT ON SCALE
SPOUT FITS SMALL VALVE IN THE BAG
BEAM SCALE
AIR FILM SLIDES POWDERY MATERIAL IN "LIQUIFIED" FORM FROM HOPPER THROUGH PACKER SPOUT

E. D. Coddington Manufacturing Co. The unit fills standard valve bags from 20 to 100 lb. No moving parts are used, the company says, and no motor is required. The packer is ready to operate when connected with a 110 volt AC service and to standard low capacity air compressor system. A built-in scale provides weight control and shuts off the packer automatically when desired weight is reached. Check No. 6843 on the coupon and mail for details.

No. 6854—Material Classifier

A "Gravitational" classifier which utilizes gravity, drag and centrifugal forces to separate dry fines from course materials has been announced by the Buell Engineering Co. The unit has no moving parts and can be used in classifying fertilizers, chemi-



cals and many other materials. Material enters the classifier at the top and low velocity air is blown through it at right angles. The air stream then turns sharply upward and passes between widely spaced vanes. In doing so it collects particles smaller than a given size. For details, check No. 6854 on the coupon and mail to this publication.

No. 6849—Copper Hydrate Complex

A technical bulletin on "Dy-Q-Plex"-1, copper hydrate complex, has been prepared by the Henry Bower Chemical Manufacturing Co. Data on the material plus specifications and package information is included. Charts on the material's physical properties, fungicidal properties and effects on marine organisms supplement the text. Copies of the bulletin can be obtained by checking No. 6849 on the coupon and mailing to this publication.

No. 7301—Folder on Batch Mixers

Rotary batch mixers are described in a folder recently released by the

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 7305—Moisture Balance

The Ohaus Moisture Determination Balance is a combination drying unit and precision balance which provides an easy way to measure moisture content of a wide variety of

products and materials, announced Seedburo Equipment Co. The unit can be used for solids or liquids and shows the percentage of moisture directly to plus or minus 0.170. The percentage of moisture loss can be read directly throughout the entire cycle as the moisture is driven off, the company says. For details, check No. 7305 and mail to this publication.

Send me information on the items marked:

- ☐ No. 6843—Valve Bag Packer
- ☐ No. 6846—Pesticide Fact Book
- ☐ No. 6847—Portable Sprayer Line
- ☐ No. 6848—Film on Weed Killer
- ☐ No. 6849—Copper Hydrate Complex
- ☐ No. 6850—Stainless Steel Couplers
- ☐ No. 6852—"Crop Protector"
- ☐ No. 6853—4-Wheel-Drive Tractor Loader
- ☐ No. 6854—Material Classifier
- ☐ No. 6855—New Sprayer Handle
- ☐ No. 7301—Folder on Batch Mixer
- ☐ No. 7305—Moisture Balance
- ☐ No. 7307—Aluminum Scraper

(PLEASE PRINT OR TYPE)

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COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS PERMIT No. 2
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MINNEAPOLIS, MINN.

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No postage stamp necessary if mailed in the United States

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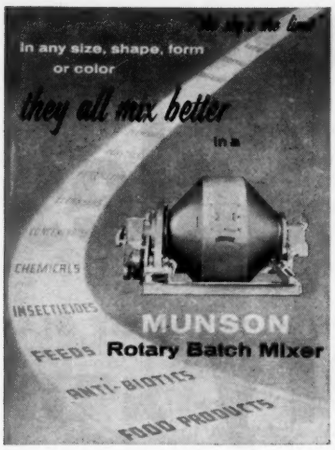
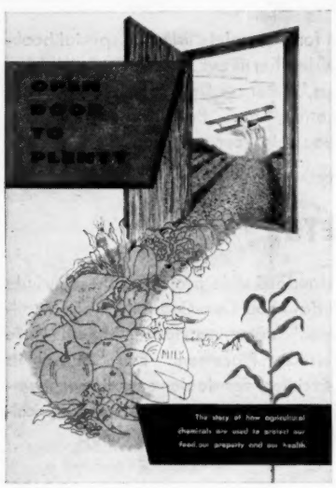


Munson Mill Machinery Co. The four-page, two-color folder contains pictures and specifications of two types of mixers—Type 4 and Type 7. Optional features of the mixers, such as quick-open door, internal vent, air control cylinder, flush valve, strip heater and internal spray pipe, are also described. For copies, check No. 7301 on the coupon and mail to this publication.

No. 6846—Pesticide Fact Book

Publication of the "Open Door to Plenty," a pesticide industry fact book, has been announced by the National Agricultural Chemicals Assn.



The book tells the story of agricultural chemicals and how they are used. The 64-page illustrated booklet reviews progress which has been made in pesticides and reports on future advances which are expected in the industry. For copies, check No. 6846 on the coupon and mail to this publication.

No. 6848—Film on Weed Killer

American Cyanamid Co. announces the availability of a new film showing the effects of amino triazole on perennial weeds like Canada thistle, cattails and quack grass. Entitled "Roots and All," the color-sound movie takes place in eastern, midwestern and western U.S. According to the company, the 16-minute, 16mm film is available for showings at weed control meetings for agricultural groups. For details, check No. 6848 on the coupon and mail.

No. 6852—"Crop Protector"

Finco, Inc., is marketing a self-propelled unit called the "Crop Protector" which sprays, dusts, defoliates, tops, seeds, fertilizes and applies granular DDT, according to company literature. Described as a high clearance machine, the "Crop Protector" is recommended for cotton, corn, tobacco, peanuts, grains sorghums and other row crops. The unit is available in horsepower sizes of eight, 18 and 25 and can spray more than 200 acres per day, it is claimed. A folder describing the unit is available by checking No. 6852 on the coupon and mailing it to this publication.

No. 6847—Portable Sprayer Line

A new line of sprayers, called "Stroll 'N Spray," has been announced by the Universal Metal Products Co., Division of Air Control Products, Inc. Each of the company's three sprayers in the line carries spray solution in a wheeled tank which rolls behind the user. The "Easy Pump" model builds up spraying pressure by moving the towing handle. For details, check No. 6847 on the coupon and mail to this publication.

No. 6850—Stainless Steel Couplers

Stainless steel "Kamlok" quick couplers are now available from Jordan Industries Sales Division of OPW Corp. The couplers are used with hoses, pipes and equipment needing a quick coupler. The Kamloks are available in ½ in. to 3 in. sizes. The couplers are suitable for pressures to 200 psi and temperatures to 550° F., the company says. Check No. 6850 on the coupon and mail for details.

NAMES NEW AGENCY

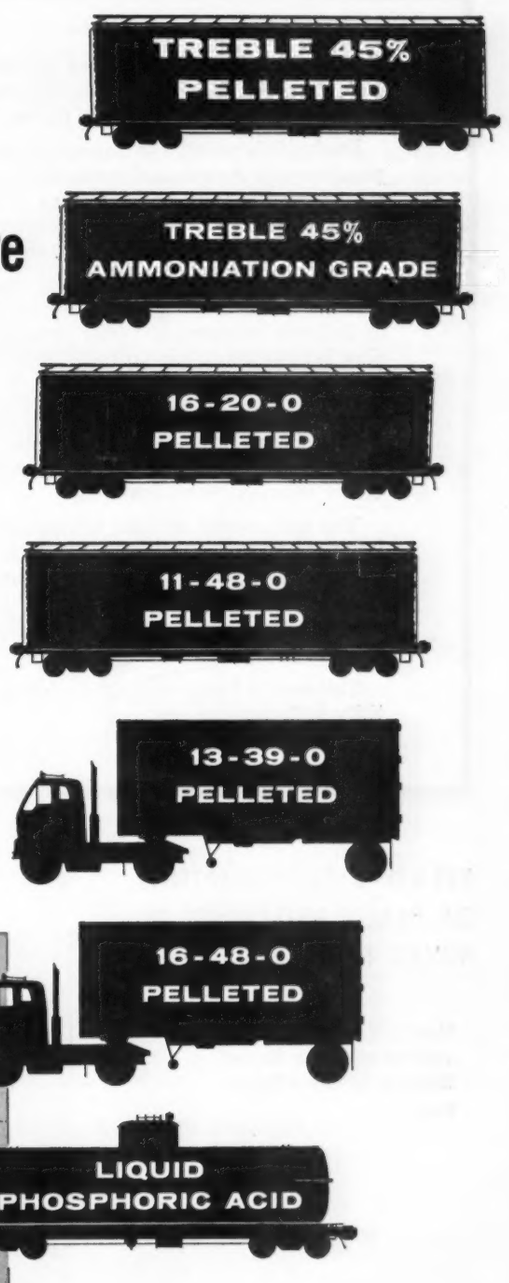
BRILLION, WIS.—R. R. Toepel, director of sales, farm implement division, Brillion Iron Works, Inc., has announced the appointment of the agricultural division of E. H. Brown Advertising Agency, Chicago, to handle the advertising of its line of farm implements. Klau-Van Pietersom-Dunlap, Inc., formerly handled the account. Jim Roe will be the account executive and George Johnson will be the assistant account executive.

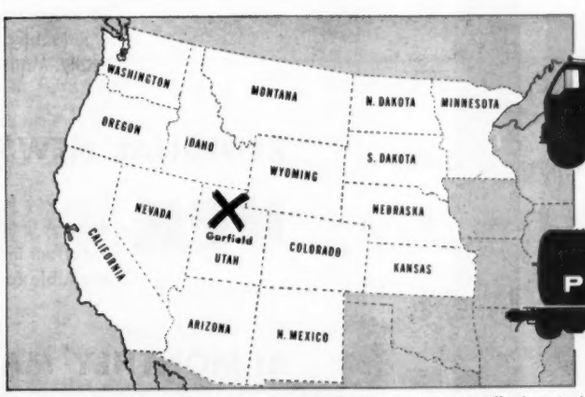
Prompt delivery...
straight or combined loads...
anywhere in the West...

your shipment gets there FAST when you order ANCHOR phosphates!

Your customers get the fast service they like when you order *Anchor* for their phosphate needs. Western Phosphates' centrally located plant at Garfield, Utah, and network of in-transit warehouses assure prompt delivery to Western growers.

For full information, call any office of Wilson & Geo. Meyer & Co., Intermountain, sales agent for these 7 Anchor products. They will expedite your order.





Western Phosphates' plant at Garfield, Utah, is centrally located to serve all the west... fast!

ANCHOR
PELLETED PHOSPHATE FERTILIZERS

Produced by WESTERN PHOSPHATES, INC., Garfield, Utah

Distributed by
WILSON & GEO. MEYER & CO.
INTERMOUNTAIN
CALIFORNIA: San Francisco, Fresno, Los Angeles, El Centro—ARIZONA: Phoenix—OREGON: Portland—WASHINGTON: Seattle—IDAHO: Twin Falls—COLORADO: Denver—UTAH: Salt Lake City

A 12-POINT PROGRAM TO Increase Fertilizer Sales in Your Territory

For more than twenty-three years, the American Potash Institute has helped expand the markets for fertilizers on American farms.

During this period, the tonnage of fertilizers purchased by American farmers has made the most dramatic gains in the history of the fertilizer industry, going from slightly over 6,000,000 to more than 22,000,000 tons a year.

These tonnage gains have been the direct result of an increasing awareness by farmers of the role balanced fertilizer programs can play in more profitable farming. Many groups and individuals have helped.

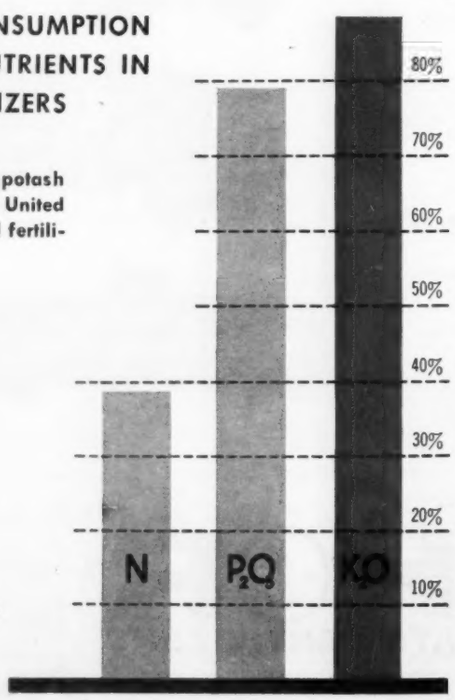
The American Potash Institute is proud of having shared in this joint effort. It is a service organization, designed to help you expand the use of balanced plant foods.

You are invited to take advantage of the many Institute services. They will help you sell fertilizer. Simply mail the coupon at the bottom of the opposite page, or get in touch with the American Potash Institute representative in your area.

This service brings tonnage-building soil fertility facts you can use.

RELATIVE CONSUMPTION OF PLANT NUTRIENTS IN MIXED FERTILIZERS

Nearly 87% of the potash consumed in the United States is in mixed fertilizers



SOURCE
U.S. Department of Agriculture, June, 1958 (ARS 41-19-1)

WALL POSTERS

NPK Potash Institute charts, on nutrient deficiencies, plant food utilization by crops, and other soil fertility topics, have become standard sources of farm knowledge on fertilizers. These charts are available for your use, for display purposes. They will help you sell more fertilizer.

SPECIAL BOOKLETS

NPK Mail the coupon for a complete listing of special booklets. These include "Fertilizer Placement," "Hidden Hunger In Crops," "Potash Deficiency Symptoms," "Forest Fertilization," and "Potash In Agriculture." They will help you help your customers.

COLORED SLIDE SETS

NPK For use in any standard slide projector. These include "Successful Alfalfa—You Can Grow It," "Soil Fertility and Soybeans," "Potassium Hunger Signs," "Safe and Efficient Fertilizer Placement." Each set with its own narration. Excellent for dealer or customer meetings. Used by fertilizer industry, teachers and agricultural advisers for classes and farm meetings.

MOTION PICTURES

NPK For dealer meetings, customer meetings, or showing on local television stations, use a free-loan Potash Institute motion picture. Full color 16 mm. sound pictures on soil testing, deficiency symptoms, tissue tests, and other subjects. Over 300,000 people see them annually. Mail coupon for complete information.

REGIONAL NEWS LETTERS

NPK Keep you informed on soil fertility subjects in your area. A time-saving digest of information on subjects important in your particular region. Extra copies also available for your customers.

BI-MONTHLY MAGAZINE

NPK The American Potash Institute's magazine, "Better Crops with Plant Food," is read and studied by agricultural leaders the nation over. Articles in "Better Crops" are written by authorities in the soil fertility field. In addition to articles on the fertilization of major crops, other subjects include forest tree nutrition, lawn and turf fertilization, flower fertilization, and house plant care and fertilization. Circulation exceeds 25,000.

REPRINTS OF SOIL FERTILITY ARTICLES

NPK Reprints of soil fertility articles, appearing in "Better Crops with Plant Food," are used by the fertilizer industry as direct mail or over-the-counter fertilizer educational material. They also go to high school and college classes. Between 300,000 and 400,000 are distributed annually.

AID TO FARM PRESS, RADIO, TV

NPK Potash Institute staff members work closely with farm magazine editors, radio and television farm directors. Many articles, photos and broadcasts stressing improved soil fertility practices have been originated or aided by Institute agronomists. These articles, pictures and broadcasts help you sell more fertilizer.

FERTILIZER DEMONSTRATIONS

NPK In cooperation with official agricultural agencies, the Potash Institute supports field demonstration programs which show farmers the value of correct fertilizer usage. Check your nearby Institute representative for demonstrations in your area.

REGIONAL AGRONOMISTS

NPK These men are practical scientists, well informed in the agriculture of the particular area in which each serves. Contact the one nearest to you, which can readily be determined from the map, below. You will find him ready to advise and help you in every way he can.

ABSTRACTS OF SOIL FERTILITY ARTICLES

NPK A valuable and time-saving service. Abstracts of scientific and technical articles on soil fertility from journals and bulletins the world over.

FELLOWSHIPS, RESEARCH GRANTS

NPK American Potash Institute graduate fellowships and research grants in some forty states and provinces have developed information on improved fertilization practices leading to increased usage.

They have also helped train a large number of professional agronomists for responsible positions in the fertilizer industry, colleges, experiment stations and the federal government.

There's a Potash Institute man near you . . . call him!

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Columbia, Missouri

R. D. MUNSON
Agronomist
2265 Carter Avenue
St. Paul 8, Minnesota

H. L. GARRARD
Agronomist
1826 Sycamore Road
Homewood, Illinois

W. L. NELSON
Midwestern Director
403 Northwestern Avenue
West Lafayette, Indiana

R. P. PENNINGTON
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593 Brant Street
Burlington, Ontario

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Portland 22, Oregon

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San Jose 13, California

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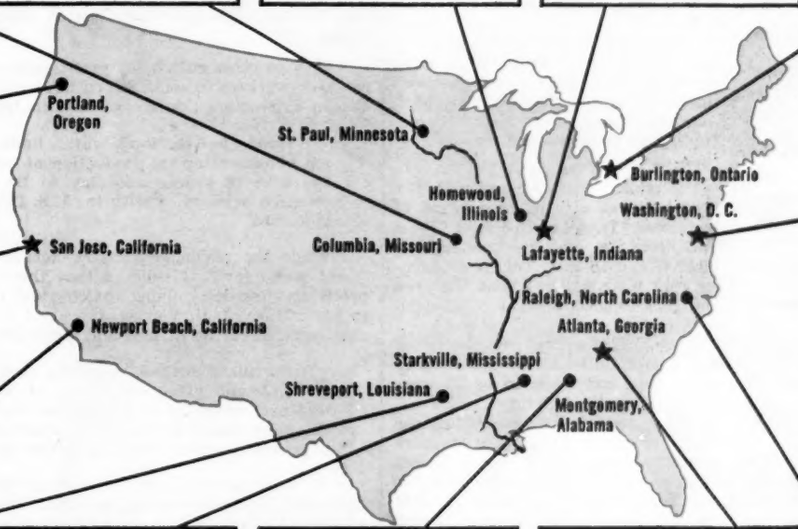

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MAIL COUPON NOW!

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1102 Sixteenth Street, N. W., Washington 6, D. C., Department 154

Please send me information on the topics checked below:

- ☐ Wall Posters
- ☐ Slide Sets
- ☐ Motion Pictures
- ☐ Special Booklets
- ☐ Regional News Letters
- ☐ Reprints of Soil Fertility Articles
- ☐ Bi-Monthly Magazine "Better Crops"

Name_____

Address_____

Town_____ State_____

THIS DISPLAY in the Simpson & Co. Farm Store, Colorado Springs, Colo. is placed near the doorway during the growing season. It is re-arranged daily, kept clean and attractive.

HABIT

(Continued from page 9)

He has found this stimulates a considerable amount of pre-season sales.

Last year he noticed that while people waited to pay for a purchase, they did not watch the employee behind the desk, but turned and looked back at the displays. So he placed a rack of gloves nearby, using many kinds and sizes.

"Now while waiting their turn, these people will try on a pair of gloves. And do you know, we sold $2,000 worth of gloves in one year. Before placing them up front, we didn't sell a fourth as many."

He also placed the soft drink machine near the cash register.

He says the vending company found that each person lingers 10 minutes longer when purchasing a bottled drink. That is often enough time to make an extra sale, according to Mr. Owens' observation.

The store owner who arranges merchandise attractively is doing only half the job, says Mr. Owens.

"We've got to have the know-how and show-how, to hold those customers. Fifty per cent of our customers want advice with each purchase. They want to know how to kill bugs, or cull chickens, or how to vaccinate a pig. The store owner who doesn't know these things or have someone on his staff who does is in for trouble."

Simpson & Co. believes in advertising and uses direct mail, newspapers and the radio. They have a selected list of direct mail customers and use a monthly letter telling how to solve various management problems and advertising new products. This is a very effective method, but should be restricted to special groups.

Newspapers are used for day-to-day small ads, and also for stressing specials. And here again Mr. Owens starts his advertising a week or two ahead of season.

The store's radio program is their best medium. They have three officials on the program which is beamed once a week. They answer questions that have been sent in by listeners, and often have more than they can use. One time they told a troubled farmer how to control his grasshoppers, and within the next few days had 35 calls on it. Most of the callers bought insecticides to kill the hoppers.

The store makes daily deliveries in the area near town, using one route in the morning and another in the afternoon. The company has one outside salesman who calls on the larger accounts and tries to get new customers.

The store does an exceptionally good business with its own brand of fertilizers. It sells Hi-Power Field Fertilizers in mixtures of 10-16-8, 17-12-4, and 10-20-3. This is so popular that it sells throughout the area and goes to several other retail dealers.

Store traffic during this past summer amounted to nearly 400 customers a day, and often 15 or 20 were in the store at one time.

"If by any way we can get just one customer out of 20 to make an extra purchase, that would mean 20 additional sales," Mr. Owens said, "so any selling effort carefully thought out and then followed through is well worth the effort."

CHOOSE YOUR AGRICULTURAL CHEMICAL APPLICATION EQUIPMENT FROM THE . . .

Complete Broyhill ® LINE

the name that means

CUSTOM QUALITY

TRAILER, TRUCK or TRACTOR MOUNTED for

- Aqua Ammonia
- Nitrogen Solutions
- Insecticides
- Weedicides

Write today for a complete catalog to

THE BROYHILL COMPANY **DAKOTA CITY, NEBRASKA**

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Consumption of fertilizers in the U.S. and territories of Hawaii and Puerto Rico during the year ending June 30 totaled 22,358,000 tons, a drop of 351,000 tons or 1.5% from that used in the preceding year, according to a preliminary report released by the U.S. Department of Agriculture.

Central Farmers Fertilizer Co. of Chicago shipped the first carload of rock phosphate from its Idaho phosphate works Dec. 19, according to announcement by Joseph L. Lanter, president of the company. The car was consigned to the Farmers Chemical Co., Joplin, Mo.

North Dakota Nitrogen, Inc., Bismarck, N.D., has been given approval to purchase government lignite piles at Garrison, N.D., according to Lynn W. Pine, Garrison district engineer.

American farmers have produced in 1958 an all-time record output of crops from the smallest planted acreage in 40 years, reported the U.S. Department of Agriculture in its annual crop summary.

Although production continues to exceed consumption, the situation in the world nitrogen market is not so pessimistic as statistics might indicate, was the opinion of Aikman, Ltd., London broker, in its annual year-end report on the nitrogen industry.

Present indications are that farmers will use more plant food in 1959 than at any time in the country's history, said Dr. Russell Coleman, executive vice president of the National Plant Food Institute. A combination of circumstances, Dr. Coleman said, is responsible for the optimism now prevalent in the fertilizer industry.

The U.S. Department of Agriculture felt that a possible slackening of farm income in 1959 could be seen by economists of the Agricultural Marketing Service, despite 1958's prices and farm income which averaged the best in five years. The economists felt that prospects are for continued heavy supplies of farm products generally, with wheat and feed grain supplies especially burdensome.

Bunker Hill Co. announced the acquisition of a phosphate property near Elliston, Mont., that could be used to supply its proposed $10 million treble superphosphate fertilizer plant, which is scheduled to be built at Kennewick, Wash.

Many factors may be responsible for failure to obtain cotton insect control, and all should be considered before placing the blame on any one specific cause, according to the Beltwide Cotton Production Conference Report on Cotton Insect Research and Control, released at the conference in Houston, Texas.

How to grow cotton for profits and markets was spelled out by cotton research workers to some 800 cotton industry leaders at the annual Beltwide Cotton Production Conference held in Houston Dec. 17-18.

Russia has the land, water, know-how and the people to do the job of increasing its production of cotton a considerable amount in the next 10 years, according to Dr. Billy M. Waddle, supervisory research agronomist with the U.S. Department of Agriculture, Beltsville, Md.

While the pesticide industry agrees that the Miller Amendment is a "good sound law," it believes that there can be developed some simplified procedures for determining toxicity and for registration of products for use in agriculture, J. V. Vernon, president of the National Agricultural Chemicals Assn., declared at a recent conference in Washington.

Fertilizer dealers attending their 10th annual conference with research and extension people at North Dakota Agricultural College are convinced that fertilizer business in North Dakota has successfully passed its launching stage and is on its way into orbit as a general farming practice in the state.

Examination of 1959 crop acreage probabilities reveals a solid basis for optimism over the market potential for fertilizer and pesticidal chemicals with emphasis on cotton and corn acreage increases over recent years, reported John Cipperly, Croplife Washington correspondent.

"Losses" to the industry in fertilizer overages range from five to six million dollars annually, the National Plant Food Institute reported. These losses result from fertilizer containing plant food in excess of that guaranteed by the manufacturer.

The problems involved in introducing new agricultural chemical products on the market received the attention of 350 chemical marketing and production specialists at a joint meeting of the Commercial Chemical Development Assn. and the National Agricultural Chemicals Assn. in Baltimore, Nov. 20-21.

Montrose Mexicana, S.A., has started operation of a new DDT plant at Salamanca, state of Guanajuato, Mexico. The plant has a capacity of 15 million lb. DDT a year, as against current Mexican requirements of 9 million lb. annually, the company said.

Central Farmers Fertilizer Co. and National Potash Co. have signed an agreement which calls for acquisition by Central Farmers of a stock interest in National and the production by National of potash materials for distribution by Central Farmers, according to a joint announcement by Richard C. Wells, president of National, and Jos. J. Lanter, president of Central Farmers.

A talk on salesmanship, the showing of a time-lapse sound-and-color film, reports on progress made within the organization during the past year and the election of eight new members to its board of directors featured the opening day of the Agricultural Ammonia Institute's eighth annual meeting in Chicago, Dec. 3.

Gloomicides

The schools teach about 50% of their pupils to tell time. The others grow up to be women.

★

A guy walked into a bar wearing a black silk suit, black patent leather shoes, a black turtleneck sweater, pearl earrings, and a 9-strand pearl necklace.

He had himself a pink lady, drank it and departed. Another customer said to the bartender: "Did you get a load of him?"

"What about him?" asked the bartender.

"My gosh," the guy said, "a black silk suit, black patent leather shoes, a black turtleneck sweater, pearl earrings and a 9-strand pearl necklace!"

"So?" said the bartender. "And what else could you wear with basic black?"

★

Anybody who thinks he doesn't need a psychiatrist these days should have his head examined.

★

Have you heard about the rich Texan (don't stop us) who arrived at the Fontainebleau Hotel in Miami Beach followed by several bell-boys carrying skis, toboggans, sleds, etc. Following them came several brace of Alaskan huskies.

"Why, sir!" exclaimed the desk clerg, aghast. "This is Florida. There's no snow here!"

"I know, I know," boomed the Texan. "It's coming right along with the rest of my luggage."

★

Today's housewife enjoys cooking —especially when it's done by the chef at one of the better restaurants.

★

Investigations prove men are better at solving problems—but only after the women create them.

★

Five-year-old Eddie had always wanted a sister. Recently his eldest brother brought home a wife. "Now you have a sister, Eddie," his mother said. "I want a real sister," he replied, "not an outlaw."

★

The bride of only a few months was at the airport to meet her husband when he returned from abroad. They were waiting for his luggage when he pointed out a good-looking stewardess from the plane, Miss Tracy.

"How do you happen to know her name?" she asked.

He explained that it was listed, together with the names of the pilot and co-pilot, on the door of the cockpit.

"Dear," she asked, "what was the pilot's name?"

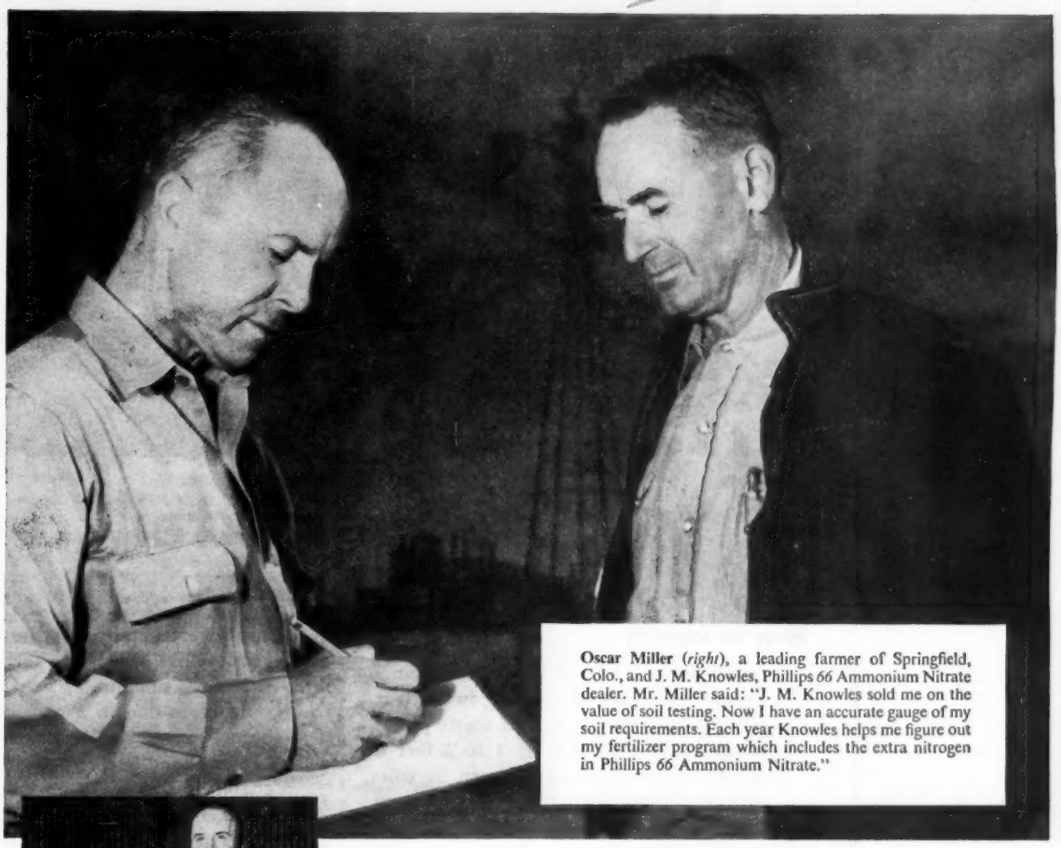
STORY

(Continued from page 9)

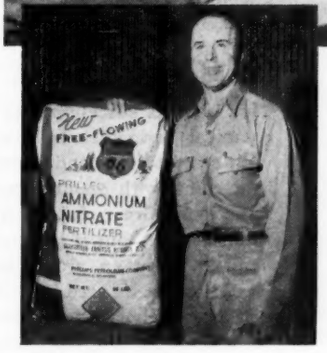
mont. He does not own any applicators, but works with a contractor who applies both fertilizer and insecticides directly on the land and crops.

"One of the main requirements in managing a business of this kind," Mr. Fleming said, "is in keeping up with new crops, new products and the general trends. We must be able to recommend the right kind of materials and know what is needed for each crop. Our soils laboratory tells us a few things, but knowing the farmer's problems and being able to help him make a higher profit are also extremely important."

PHILLIPS 66 ads like this appear regularly in CAPPER'S FARMER, PROGRESSIVE FARMER, FARM JOURNAL and FARM and RANCH . . . part of a continuing program to help dealers sell more mixed fertilizers and PHILLIPS 66 AMMONIUM NITRATE.



Oscar Miller (*right*), a leading farmer of Springfield, Colo., and J. M. Knowles, Phillips *66* Ammonium Nitrate dealer. Mr. Miller said: "J. M. Knowles sold me on the value of soil testing. Now I have an accurate gauge of my soil requirements. Each year Knowles helps me figure out my fertilizer program which includes the extra nitrogen in Phillips *66* Ammonium Nitrate."



"I like to recommend Phillips 66 Ammonium Nitrate to my customers," says J. M. Knowles, operator of the Vilas Grain Company, Vilas, Colo. "It's so free flowing many of my customers apply it through a grain drill. And, of course, this means that it applies evenly for a more uniform crop response and better yields."

Plan for more profits with your fertilizer dealer's help

"My big concern in the past few years has been to build up my soil fertility," Mr. Miller said. "When I began irrigating, Knowles helped me plan a continuing program of fertilization. Part of this program was plowing down Phillips *66* Ammonium Nitrate on maize stubble. My maize yields have built steadily from 50 bushels to 100 and more bushels. I figure I'm getting back $6 for every $1 spent on nitrogen. Believe me, fertilizer is an investment, not an expense."

Like Mr. Miller, other successful farmers have found that the Phillips *66* Ammonium Nitrate dealer can help them plan for more profits. And they know that their dealer's services extend beyond selling fertilizer.

Remember that *your* fertilizer dealer can help you get and maintain high yields through *balanced fertilization* . . . using his high quality mixed grades and the extra nitrogen in Phillips *66* Ammonium Nitrate. Call him today and talk to him about *your* fertilizer program.

"A good name Phillips 66 *to grow by"*

PHILLIPS PETROLEUM COMPANY. Sales Offices: Amarillo, Tex.—First Nat'l Bank Bldg. • Atlanta, Ga.—1428 West Peachtree Street, Station "C" P. O. Box 7313 • Bartlesville, Okla.—Adams Bldg. • Chicago, Ill.—7 South Dearborn St. • Denver, Colo.—1375 Kearney St. • Des Moines, Iowa—6th Floor, Hubbell Bldg. • Houston, Tex.—6910 Fannin Street • Indianapolis, Ind.—3839 Meadows Drive • Kansas City, Mo.—201 E. Armour Blvd. • Minneapolis, Minn.—215 So. 11th St. • New York, N. Y.—80 Broadway • Omaha, Neb.—3212 Dodge St. • Pasadena, Calif.—317 North Lake Ave. • Raleigh, N. C.—401 Oberlin Road • Salt Lake City, Utah—68 South Main • Spokane, Wash.—521 East Sprague • St. Louis, Mo.—4251 Lindell Blvd. • Tampa, Fla.—3737 Neptune St. • Tulsa, Okla.—1708 Utica Square • Wichita, Kan.—501 KFH Building.

WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Green Foxtail

(Setaria viridis)

How to Identify

Green foxtail, one of the most common grassy weeds found growing in cultivated land, gardens, lawns, and waste places, is an upright plant from 1 to 3 feet in height. Leaves are dark green in color and are alternately arranged on the stem. The head is dense, green in color, 1 to 3 inches long and covered with many stiff upright green bristles. Seeds are small, nearly oval, slightly flattened on one side, usually green, but may be yellow, brown or black. Roots of the plant are shallow and very fibrous.

Habits of Green Foxtail

An annual, reproducing only from seeds, green foxtail appears in cultivated fields, gardens, roadsides, and waste places. It flowers from July to September and seeds from August to October. It is generally distributed, but is not a native of the U.S., having been introduced into North America from Europe. The plant, a particular pest in gardens, is usually present until overtaken by frost in the fall of the year. It has a capacity for producing an enormous amount of seed, and its persistence is due to a considerable extent because some foxtail seed is usually found in every kind of crop seed harvested, thus enabling the weed to spread to new areas.

Control of Green Foxtail

This plant is susceptible to a number of chemical herbicides used in accordance with state recommendations and strictly in keeping with manufacturers' label instructions. Green foxtail yields readily to cultivation, but it has been found difficult to keep an area clean from this weed because its seed is produced in such a relatively short time. Cultural practices include cultivating cornfields lightly late in the season to prevent foxtail from producing a crop of seed. Early plowing or disking of the small-grain stubble fields will also help in keeping foxtail from maturing.

Illustration of Green Foxtail furnished through courtesy of The Dow Chemical Co., Midland, Mich.

Thomas Dabovich

NEW VICE PRESIDENT—Thomas Dabovich, formerly general sales manager for the Morton Chemical Co., Chicago, Ill., has been elected vice president of Morton Chemical, according to an announcement made by the company's board of directors. Mr. Dabovich joined Morton Chemical Co. in September, 1954. After graduating from the University of Illinois College of Pharmacy in 1939, he served as research chemist for G. D. Searle Co., Skokie from 1939-43; meteorologist, U.S. Navy, 1943-46; western regional sales manager of Sharples Chemical Co., 1946-52; and sales manager of industrial chemical division, J. T. Baker Chemical Co., 1952-54.

George W. Fleck Joins Kraft Bag

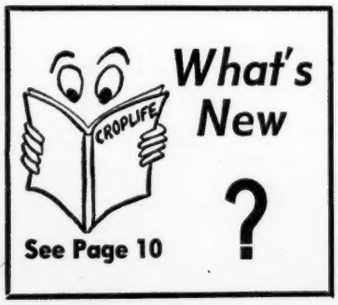
NEW YORK — George W. Fleck has joined the sales staff of Kraft Bag Corp., New York. He will cover most of North Carolina, South Carolina and eastern Tennessee, with headquarters in Charlotte, N.C. Mr. Fleck was formerly with Union Bag-Camp Paper Corp. The Kraft company operates integrated mills at St. Marys, Ga., and Gilman, Vt. Mr. Fleck will handle sales of both multiwall bags and the Kraftpacker open mouth bag filling machine.

Arkansas Sales

LITTLE ROCK, ARK. — Fertilizer sales in Arkansas during November amounted to 4,387 tons, reported the State Plant Board. This amounted to 1,323 tons more than November, 1957. Total materials sold amounted to 2,762 tons and total mixed grades sold were 1,624 tons.

ELECTED PRESIDENT

PORTLAND, ORE. — Joe Varner, Gaston, Ore., was recently elected president of the Nut Growers Society of Oregon and Washington, succeeding Gordon Hull, Salem, during the group's annual meeting at McMinnville. Other officers are Rodney Chase, Springfield, first vice president; Arthur Oldenburg, Salem, second vice president; L. T. Carrick, Corvallis, treasurer, and C. O. Rawlings, Oregon State College extension horticulturist, secretary.



Mississippi Firm Plans $1 Million Sewerage Sludge Plant

MERIDIAN, MISS.—A newly chartered firm, Dixie Fertilizer Co., organized in October, is planning a $1 million operation. The firm plans to manufacture fertilizer, using activated sludge from Meridian's new sewerage treatment plant as the primary base material. This method would provide approximately 30% of the material used in the manufacture of the type of fertilizer to be produced by the company.

According to J. A. Hill, president, it will be one of the largest of its kind in the country. The proposed plant is for a factory with 50,000 square feet of floor space and a capacity of 120,000 tons of the finished product annually.

Construction Starts On Pakistan Plant

KARACHI — Construction has started on a new fertilizer plant, expected to cost about $32 million, at Multan in West Pakistan. It is being constructed by the Pakistan Industrial Development Corp., in cooperation with several French companies. By the end of 1960 production is expected to total 103,000 tons of ammonium nitrate and about 60,000 tons of urea.

New Rodenticide Made Available by Firm

WICHITA, KANSAS — Robert S. Wise, Inc., of Wichita has announced the availability of its new zinc phosphide rodenticide in commercial quantities, for the first time. The bait heretofore has been used experimentally by the U.S. Fish and Wildlife Service.

The material is recommended by its makers for field use primarily, although it has been used with success in grain elevators. Its chief application, however, is indicated for range lands, orchards, alfalfa fields, nurseries, etc. It is applied evenly on the ground at the rate of 5 to 10 lb. an acre, with no harm to wildlife, according to tests made in a number of western and midwestern states.

"Clupak" Paper Output New Unit Will Raise

NEW YORK—West Virginia Pulp and Paper Co. will equip a second paper machine for producing Clupak paper at its Charleston, S.C., plant, where an initial installation has been in operation since early 1958. According to David L. Luke, president, the new Clupak unit will increase West Virginia's capacity for producing the new stretchable paper to more than 150,000 tons annually.

Mr. Luke stated that the company expects to have the new unit operating in January.

Although production of extensible paper is presently limited to kraft grades, additional applications extending to a number of grades of paper are being developed by West Virginia research and product development teams. These teams are also carrying out continuing projects aimed at further improving the tough, workhorse characteristics of the basic products.

When stretchable paper was first introduced early in 1958, it was announced that other paper manufacturers would be licensed to produce Clupak paper. Two other major paper producers have recently been licensed through Clupak, Inc., and other major producers are expected to sign agreements in the near future.

LOCUST ATTACK

TUNIS, TUNISIA—Millions of locusts, believed to be the advance element of an even larger number moving in from the Algerian Sahara, are attacking crops in southern and central Tunisia.

Employment Holds Steady In California Chemicals

SAN FRANCISCO — Employment in the chemical manufacturing industries in California held steady between October and November—at an even 38,600, according to estimates by the division of labor statistics and research of the California State Department of Industrial Relations.

This lack of movement was in opposition to a slight October-November rise registered last year. At that time employment rose from 39,400 to 39,600 between the two months.

Average weekly and hourly earnings of the production worker segment declined slightly during November. From an all-time high of $102.48 per week in the earlier month, the average weekly earnings in November had slipped to $102.09. Hourly earnings were off one penny on the average—from $2.49 to $2.48, and the length of the work week remained almost the same—41.2 as compared with 41.1 hours in November.

The corresponding figures for November, 1957 were $98.97 per week, $2.41 per hour, and 41.0 hours per week.

New Lime Firm

MORGAN CITY, LA.—The Pelican State Lime Corp., owned by Anthony J. and John Guarisco and Roland Verret, Jr., is slated to begin operations in March, 1959 on the Intracoastal Canal four miles east of Morgan City. According to the owners total investment will be $250,000.

SHORT COURSES OFFERED

DAVIS, CAL.—The University of California is offering short courses on insect pests and plant diseases during January and February for growers in Yolo and Sutter counties. Research and agricultural extension service specialists from the university campus at Davis will conduct the classes.

HIGH-K

MURIATE OF POTASH for the PLANT FOOD INDUSTRY

THIS symbol stands for high-grade uniform, coarse and granular Muriate of Potash (60% K_2O minimum). Southwest Potash Corporation provides a dependable supply of HIGH-K* Muriate for the plant food industry.

*Trade Mark

Southwest Potash Corporation

61 BROADWAY ▲ NEW YORK 6, N. Y.

Doing Business With

Oscar & Pat

Oscar Schoenfeld was eating his tenth buttermilk pancake flooded with relative-donated maple syrup on that cold January morning, when his wife, Minnie, said, "Oscar, I see where the M. & M. Clothing Co. is having a big sale. Reductions up to 40%."

"Yah?" said Oscar, his mouth full of pancake. "Ach, I don't care. We sell fertilizer at our store—for cash, if I can get it."

"I know. I know." Minnie was patient. "But, Oscar, this is your chance to get some new clothes at a bargain. And I think you should get some. Your suits are getting so shiny, and I can't turn the cuffs any more. I have cleaned your neckties so many times they are all yellowish."

Oscar laid down his fork and surveyed his wife critically. "Minnie, what is the matter with you? You haf no A.T.&T. stock, and I haven't any. You hadt no dowry when I married you. Everything we haf we haf saved. My clothes are clean. They are paidt for. That's something a lot of these spendters today can't say."

"The last time you bought some suits was five years ago," Minnie said. "You bought them from that pawn broker who came out here selling stuff. Those suits are all worn out now, Oscar, and so old fashioned. Please get one new one—just one. And a new felt hat and a shirt."

Oscar sipped the last of his coffee, then looked down at his trousers and fingered the worn crease.

"Ach, I will not promise to buy," he said, "but I will schneak over to M. & M. when I go to the bank and see what they have."

"Oh, good," exclaimed Minnie. "Let me go along and help you."

"Nein! I don't want a woman with me when I buy. Always they agree with the clerk. Always they feel the cloth and say 'fine, fine, why don't you get this one?' They try to get you to buy the expensive ones. No, I pick my own, if I buy."

Minnie looked downcast. "But, Oscar, how can you see your back when you try on the coat? How do you know if the clerk is holding all the slack in his hand and telling you it fits you like a banker?"

"Well, I am a banker now," Oscar said. "I have lots of money in the bank. I own stock in it. Ach, I am on the boardt of directors. You should see the silly money lending ideas I schtep on."

"But the last time you bought a suit alone, five years after we were married, you came home with a coat that filled out like a balloon when the wind blew under it. It was too big!"

"Ach, I like roomy clothes," Oscar snapped. "Minnie, let us get things straight. My first chob is to earn money for us so we can safe it and put it in the bank and not lif it up like everybody else. To do that I haf to watch that Irish partner of mine. I haf to see that the money is collected and the discounts are taken. That's first, nein? After that, it is time to buy some clothes. If I findt time to buy, okay. If not, I don't. Ach, that's it."

When Oscar went to work a few minutes later, Minnie spent a few moments in prayer. She thanked the Lord for a husband who always provided for her, even though sparingly, who never beat her, who always paid his bills. But she also prayed that his stubborn will might soften a little, that he would show her some tenderness and also some gifts of legal tender. She also prayed that he would buy some new clothes and become the Sir Galahad she thought he was when she married him—oh, it seemed so long ago.

But when Oscar came home for lunch, he was as sour as freshly squeezed lemon juice. Minnie wisely waited until he ate his fried liver sausage and rye bread. Then, "Did you find a suit, Oscar?"

"I did not!" he snapped. "Those M. & M. fellers. Now I know why they haf a big loan at the bank."

"What's wrong with them?"

"Ach, they don't know how to please a customer," Oscar growled. "No more suits with vests they haf. Ach, you know I always haf vests with my suits, Minnie. That's where I keep lots of pencils and pens that salesmen gif me. We neffer spendt any money for pencils and pens. I'm a figgerer."

"No more vests!" Minnie said, shocked.

"Yah, it shows you how foolish men are gettink. There was one blue suit I liked with two pair pants for $30. No vest, ach, but I remembered I haf an old blue vest home I can wear with it. But when I wanted to pay cash for the suit and take a 5% cash discount, they said 'nein.' So I said I think it over and let you know. I will think a long time, too.

"Ach, and the shirts. No more shirts with collars to button on. Everything now is those shirts with collars on. They get dirty effery day and you haf to change shirts."

"Oh," said Minnie. She, too, was shocked how rapidly the men's fashions were changing. She knew Oscar never wore a shirt that didn't have a detachable collar and double cuffs.

Oscar snorted. "Then the M. & M. clerk he came to me with a hat—a roundt one, with a little brim you couldt hardly see. A pork pie hat he called it. He schlappdt it on my headt and pushed me before the mirror to look at myself. Minnie, such a hat. I didn't know who I was."

"Did you take off the hat right away?"

"Didt I!" roared Oscar. "I took off the hat and I schlapped it on the clerk's headt before he knew what I didt. He has a small headt and the hat came right down over his eyes and nose. Then I walked oudt of that place. I think things offer, all right. I neffer go back there."

Minnie looked very upset. "Oh, Oscar, don't you think maybe we are just a little bit too old fashioned? Maybe we should spruce up a bit, like other people do."

Oscar looked up sharply, his lips tight. "Minnie, get this straight. Being old fashioned is all right—in business and in liffing. There is nottink old fashioned about earning a goot profit, and in collecting the money that's due you. There is nottink old fashioned in not wasting money, in holding down your costs, so there is something left offer. If more business men did that then there wouldt not be so many bankruptcies in business."

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Research in the News

In the history of California's farm production, 1958 will be recorded as another good year, and the over-all value may well approach the record set in 1956, said W. L. Jacobsen, director of the California Department of Agriculture.

This is in spite of unusually heavy rainfall in the spring, above normal temperatures in July and August, and untimely September rains, he said.

The value of crop production rose 3% over 1957 and is only 4% under the 1956 record. The figures are not complete for livestock production, but cash receipts from this source were running 9% ahead of 1957 for the first three quarters of the year and 12% above 1956.

While the value of farm production is high, it should be emphasized that farmers' production expenses have also continued high, and for the last few years have taken nearly two-thirds of the producer's dollar.

The production of all California crops in 1958 was about 29,526,400 tons. This total production has been exceeded only by that of 1956 and 1957.

The 1958 California crop tonnage was harvested from 8,545,100 acres, only slightly above the total acreage devoted to crops in 1957. While the 1958 acreage is 22% above the average of the 1930's, the total volume of crop production in California has risen 85% since that period, reflecting largely the tremendous increases in yields per acre.

We are not at all pessimistic about the outlook for California production during the coming year, Mr. Jacobsen said. It is true that the extremely dry fall weather did step up the necessity for some late irrigation, has caused livestock men to utilize more supplemental feeding, and some early-seeded dryland grain has suffered some setback, but farmers and ranchers have used the open weather to good advantage. They are right up to schedule with most of their fall work and will catch up with the winter plantings after the first good rain.

●

Farmers who are growing corn on land that was leveled for irrigation may find zinc fertilizer one of the best investments they can make next year.

That's the word from Clinton A. Hoover, assistant extension agronomist at the University of Nebraska, who says zinc fertilizer on irrigated corn returned $3 for every dollar invested in a fertilizer demonstration in Saline County where land had been leveled for irrigation 2 years previous.

Zinc fertilizer upped the yield of corn 17 bu. an acre. Cost of the 14 lb. of zinc per acre came to $6. One hundred and eight pounds of available nitrogen also was applied before planting.

Corn is quite likely to show severe zinc deficiency on land where all or most of the topsoil has been taken off in leveling for irrigation, Mr. Hoover says. These areas are also likely to be deficient in nitrogen and phosphorus.

Fertilizer containing zinc will give good results if broadcast and plowed down for surface planting and also listed corn if the lister is run shallow. When the corn is listed deep, the zinc fertilizer should be placed in the furrow next to but not in contact with the seed.

Listing, following a broadcast application will throw the zinc out into the ridges where it will be of little or no benefit.

Fertilizer containing zinc should be applied at a rate which will supply 10 to 20 lb. available zinc per acre. A single application of zinc will probably be good for several years.

●

The amount of extractable aluminum in soils affects the amount of lime needed to grow healthy crops. Crops growing in soils high in this kind of aluminum need more lime than a soil test usually indicates.

M. R. Heddleson, Nicholas Holowaychuk and E. O. McLean, agronomists of the Ohio Agricultural Experiment Station, surveyed Ohio soils and found the aluminum problem may be a bigger one than expected. The range in amount of aluminum varies widely, but the concentration of the toxic element is greatest in northeastern Ohio soils.

Although most farmers are sold on the practice of spreading lime, it may be that many are not applying large enough amounts to counteract the aluminum, they said.

Soil tests which will measure extractable aluminum are being developed. Soils which originally had high amounts of aluminum but have been limed to different pH levels (acidity) for varying periods of time are being studied.

It will be of practical importance to the nation's farmers to know whether this form of aluminum, once accumulated in acid soil, is eliminated by liming or just temporarily held down in a less soluble form ready to appear again once the acidity begins to increase.

The aluminum buildup in soils has been greatest in soils which developed under strongly acid weathering conditions.

●

Wide row planting can give top yields of small grains when heavy applications of fertilizer are placed below and to the side of the seed, reports the Midwest Division of the National Plant Food Institute, in a statement citing tests by Michigan State University soil scientists.

Yields were just as high with 11-in. rows, as with 7-in. and 9-in. rows, the research men report. But yields decreased when the rows were widened to 14 in.

Increasing the rates of seeding in the wider rows helps increase the yields of the small grains, according to the soils specialists.

The most practical row width appears to be 11 in., the specialists say, because this permits room for seeding equipment that is designed to place the plant food to the side and below the seed.

The Michigan research men advocate the development of an all-crop drill that will place the fertilizer in the soil apart from the seed and allow different row spacing to fit the needs of different crops.

Putting the fertilizer below and to the side of the seed helps avoid injury to the seeding. Moreover, this placement method puts the plant food where it will be in the part of the growing roots. This gets the crop off to a good start and sets the stage for bigger yields at harvest time, the research men say.

●

Dead bud, a disease which has threatened Willamette Valley sweet cherry orchards, can be controlled through a systematic spray program, according to an announcement from the Oregon State College agricultural experiment station.

The disease destroys buds on sweet cherry tres, preventing the development of new leaves and flowers in the spring. In some parts of the valley, it has been estimated growers have lost as much as one-third of their normal sweet cherry crop because of the disease.

Recent research results show the disease can be controlled by either a Bordeaux spray at 12-12-100, or Puratized Agricultural Spray at 1 pint per 100 gal. of water plus spreader sticker, reports H. Ronald Cameron, OSC plant pathologist. The first spray should be applied early in October, before heavy fall rains start, he said, with a second spray applied as soon after the first of the year as possible.

●

Farmer investment in proper fertilizer use offers almost unbelievable returns, according to the California Fertilizer Assn.

Each crop requires different fertilizer treatment. Every plot of soil must be treated on a prescription basis, to derive the most return on the farmer investment of his time and capital, because of its individual cropping and fertilization history.

University and USDA technicians advise that no single fertilizer is best for any crop on all soils. Dr. George B. Alcorn, director of the agricultural extension service, University of California, said at a recent meeting of the association that ammonium sulfate makes some soils unduly acid. The same material may be highly efficient and desirable on other soils, because of their alkaline nature, or sulfur deficiency.

Dr. Alcorn cited an example—a field of sugar beets near Gridley developed a pale yellow color and grew poorly, though fertilized with the proper amount of nitrogen. The soil phosphorus supply was adequate. The field had been fertilized with a material which contained no sulfur. The beets were sulfur deficient, but regained their vigor when gypsum was added to supply sulfur. He said that it should be remembered that the cheapest fertilizer is not always the best and that the best material to do the job should be recommended.

In connection with the varying plant food needs of different crops, the association pointed out that a 20 ton an acre crop of sugar beets requires these amounts of the principal nutrients from each acre, which must be available in the soil, or added to the soil: 150 lb. nitrogen, 60 lb. phosphoric acid, and 170 lb. potash.

Twenty tons tomatoes require 200 lb. nitrogen, 80 lb. phosphoric acid, and 400 lb. potash. Three hundred-100-lb. bags of Irish potatoes require 225 lb. nitrogen, 60 lb. of phosphoric acid, and 330 lb. potash. Eight hundred boxes of oranges require 120 lb. nitrogen, 40 lb. phosphoric acid, and 175 lb. potash.

●

A $36,000 grant from the U.S. Public Health Service has been awarded to University of California scientists.

The grant will finance research by Vernon M. Stern and Robert van den Bosch, entomologists, in developing basic knowledge which can be utilized in the control of harmful insects through the integration of chemical and biological control concepts.

The Citrus Experiment Station scientists will study fluctuations of harmful and beneficial insect populations after chemical treatments. Emphasis of the studies, to last three years, will be on solving four problems that often arise from too-frequent insecticide use:

1. Insect resistance to chemicals.
2. Need for more frequent and larger dosages of chemicals as beneficial insects are killed off.
3. Possibility of hazardous residues on food and forage crops.
4. Secondary outbreaks of pests normally held in check by environmental conditions before they were changed by the use of chemicals.

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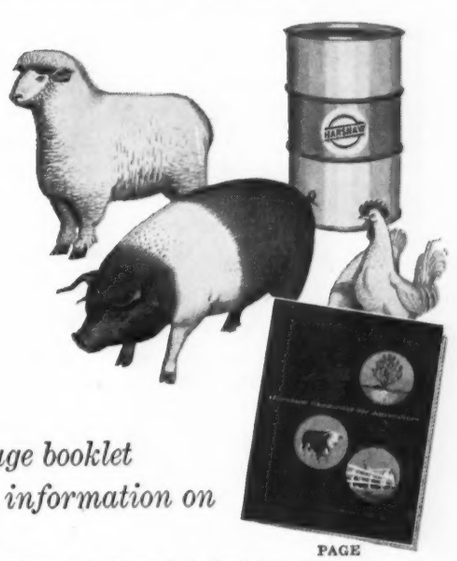

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GUEST SPEAKER—R. C. "Red" Bamberg, Alabama commissioner of agriculture and industries elect, center, was the guest speaker at the fourth annual meeting of the Alabama Soil Fertility Society, Inc. On the left is Frank E. Boyd, president of the society. P. O. Davis, right, director of the Alabama Polytechnic Institute extension service, introduced Mr. Bamberg.

ALABAMA MEETING

(Continued from page 1)

in the business of liming and fertilizing," declared Mr. Boyd. "Guessing is a sure road to disaster in this highly competitive and mechanized farming age."

"Over the past two years, in cooperation with the county agents and the soil testing laboratory at Auburn, we have examined each soil test report—some 50,000 separate sheets—and tabulated the findings by counties, by crops, by soil types, and have compiled a chart showing Alabama fertilizer needs as compared with the actual sales," Mr. Boyd said. "Needs and sales are far apart in most counties," he added.

Highlights of the business session were reports from C. P. Storrs, Elmore County cotton farmer who averaged 945 lb. of lint per acre on 17 acres, and Jack Bolling, county agent, and Ben Walker, farmer, of Macon County.

Mr. Storrs reported that he planted All-In-One variety cotton on loamy sand river terrace. He fertilized with 550 lb. of 4-12-12 at planting, 500 lb. of the same at the second cultivation, and sidedressed with 200 lb. of ammonium nitrate. Mr. Storrs made eight applications of BHC by plane and reported good weevil control but boll worm damage.

Mr. Bolling reported on the results of experiments on 936 acres of nonirrigated cotton and 405.5 acres of irrigated cotton.

Ten farms were used for these cotton production demonstrations. The largest had 440 acres in cotton in the demonstration while the smallest contained 15 acres. All 10 farmers irrigated some of their cotton acreage and two of them irrigated their entire cotton acreage.

While the merit of irrigation in cotton production was an important phase of these demonstrations, the growers followed all other recommended cultural practices. Where irrigation was used, growers averaged 935 lb. of lint per acre as contrasted with 588 lb. per acre with no irrigation. The high yielding cotton netted $128 more per acre than did the lower yielding non-irrigated cotton.

Farmers irrigating used an average of 243 lb. more of mixed fertilizers and topdressed with an average of 57 lb. more nitrogen than they did where irrigation was not employed. Regardless of whether irrigation was used, they made an average of about 12 applications of an insecticide.

Mr. Bolling felt the most important point was that the cotton was produced profitably to the grower—far more so than the unirrigated cotton which was fertilized at lower rates.

J. C. Lowery, Alabama Polytechnic Institute extension service agronomist, told the society members that low acre yield in cash and feed crops is a barrier to progress in Alabama. With this problem in mind, a new soil fertility program is being launched over the state, the agronomist declared. The objectives will be to get soil testing to become a general practice, to get a better job of fertilizing done on cash and field crops, and to bring into use fields that are now idle.

Others on the program included Dr. Howard T. Rogers, head of the agronomy and soils department of the API experiment station at Auburn; Mike Evans, experiment station research agronomist; Dr. Dennis Rouse, head of the soil testing laboratory at Auburn; Ed Parker and Ulay Wise of the Spencer Chemical Co.; Dr. Sam Tisdale, southeastern regional director of NPFI; and Dr. Ben Lanham, agricultural economist, API.

At the noon luncheon, Director P. O. Davis of the API Extension Service introduced R. C. "Red" Bamberg, commissioner of agriculture and industries elect.

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Adds New Package To Fungicide Line

WILMINGTON—The 6-oz. jar of "Manzate" maneb fungicide has been added to the Du Pont garden chemicals line this year. A 6-oz. jar makes 25 gallons of spray, enough to treat 40 four-foot bushes 12 times. For larger users, "Manzate" is available from farm supply stores in 3-lb. bags, 4½-lb. bags and 50-lb. fiber drums.

Greenbug Infestations Found in Texas Grain

COLLEGE STATION, TEXAS—A survey covering the principal small grain growing areas of the state shows that greenbugs are becoming quite abundant in some fields south of Amarillo and on the South Plains. C. F. Garner and J. H. Hawkins, extension entomologists, report the survey showed infestations ranging from 5 to 20 greenbugs per linear foot in fields north of Lubbock.

They also noted that a good population of predatory insects was present. They pointed out that the reproduction and feeding abilities of these beneficial insects are greatly reduced when temperatures are below 65° F. and that greenbugs, on the other hand, are able to reproduce at 40° F. temperature.

The entomologists advise wheat growers in the area to make periodic checks of their fields in order to keep a close watch for greenbugs. Control measures, they say, should be applied when the average number of greenbugs in fall-sown small grain reaches 100 per linear foot at any time before the boot stage. High populations do more damage early in the season, they said.

Control measures may be warranted in very young wheat and spring-seeded grains when greenbug populations of 25 to 50 insects per linear foot are reached.

The entomologists said that winter grain mites were found in many central Texas counties and in Kerr and Kendall counties, but damage was not apparent. These pests were described as capable of reducing or even destroying a stand of grain. Brown wheat mites were found on only one farm.

Mr. Garner and Mr. Hawkins said insecticides are available which will control the greenbugs and mites should populations increase enough to warrant their use. They advised grain producers to contact their local county agent for detailed information on the control measures and their use.

ON MONSANTO BOARD

ST. LOUIS—Herbert Hoover, Jr., of Los Angeles was elected a member of the board of directors of Monsanto Chemical Co. here. Mr. Hoover, a consulting engineer, served as Under Secretary of State from 1954 to 1957 and is the son of the 31st President of the U.S.

North Dakota Soils Short on Phosphorus, Scientists Report

FARGO, N.D.—Most of North Dakota's soil is likely to be short on phosphorus—unless it's part of that elite 10% which has ample amounts. That's the way North Dakota Agricultural College soil technicians see it after processing over 16,000 soil samples since 1953.

Agronomy researchers emphasized that phosphorus gives a profitable boost to small grain yields. Farmers should use the superphosphates, or a fertilizer supplying about 1 part nitrogen to 4 parts phosphorus—8-32-0 or 11-48-0, for example. Nitrogen is almost an essential for small grains following most nonfallow land. It may pay to use a little on fallow, too, because a lot of fallow land is short on organic matter, they say. Also, the farmers might want to use nitrogen if the fallow was started after June 15, or if weeds flourished the last part of the fallow season.

The amount of phosphorus needed by small grains depends on how well the soil is stocked with the element. For the past several years NDAC researchers have been watching different rates of phosphorus influence yields on soils having varying levels of phosphorus content. Using wheat as a test crop, here's what they found:

For soils testing "very low" in phosphorus, 35 to 45 lb. of available phosphorus per acre gave the best results. The rate was about 25 lb. for "low" testing soils and 20 to 25 lb. for soils ranking "medium" in phosphorus content. To help put these rates in fertilizer terms, 100 lb. an acre of 0-25-0 would provide 25 lb. available phosphorus an acre.

Farmers can get the most milage from phosphate fertilizer by drilling it with the small grain. The trials show that when broadcast, phosphorus rates have to be at least doubled, or often tripled, before they can match the performance of drilled phosphorus.

PARASITE STUDIES

RENO—The University of Nevada will offer farmers and ranchers an eight week course in diseases and parasites of domestic animals in February. Dr. Donald W. Marble, assistant veterinarian at the university, will conduct the course. Three hours university credit will be offered.

GOLDEN ANNIVERSARY—R. M. Wilbur, left, manager of the Coronet Phosphate Co., Plant City, Fla., B. G. Dabney, former manager, now serving Coronet as a consultant, and R. S. Rydell, vice president of the parent Smith-Douglass Co., examine a historic Coronet charter, which organized the firm in 1909, under Florida laws, in the center of the state's phosphate industry. Throughout 1959, Coronet is planning special events in celebration of its golden anniversary.

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Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

LOGICAL TREND . . .

Consumption of Plant Nutrients up Despite Fewer Overall Tons of Fertilizer in 1958

EXPANDING use of high analysis fertilizers is becoming more evident every year. In the recent preliminary report issued by the U.S. Department of Agriculture for the fiscal year ended last June 30, a gain of 88,000 tons in the quantity of primary nutrients was recorded.

This would be commendable at any time, but particularly so in the face of declining overall tonnage for the U.S. during the past year. According to the preliminary report, which in past years has always been quite close to the final figures, a total of 22,358,000 tons of fertilizers of all kinds was used in the U.S. and territories. This was a decline of 351,000 tons, or 1.5%.

Of significance also is the fact that the planted acreage on U.S. farms was the smallest in 40 years. Although the acres were relatively few in number, it is no secret that crop production was far above previous records in some areas despite unfavorable early-season weather. USDA reports indicate that record high yields per acre brought about total production which exceeds the previous record by 11%.

There is, of course, a strong correlation between the high yield on fewer acres and the upturn of primary plant nutrient use. Crops such as wheat, corn, soybeans, barley, hay, popcorn, tung nuts and sorghum grain were all produced in record amounts and near-records were established in crops of oats, peanuts, potatoes, dry beans, sugarbeets and others.

Some of the significant footnotes to the USDA fertilizer report are seen in a 3.1% decrease in mixed fertilizers while the use of materials for direct application totaled some 8,106,000 tons, an increase of 1.2%. Direct application materials were about 100,000 tons over last year's figures, while mixed fertilizer application declined by some 451,000 tons.

In what areas were the greatest gains and losses tabulated? The USDA report indicates the West North Central states used 114,000 more tons of fertilizer than they did in the year ended June 30, 1957. This record was made despite a reduction of 46,000 tons in Missouri and 21,000 tons in Kansas. The other states of the region, Minnesota, Iowa, the Dakotas and Nebraska registered strong gains (Iowa up 65,000 tons and Nebraska 63,000) to make that region's gain greatest in the U.S.

Other regions showing increased use were the New England States, up 20,000 tons; East North Central (Ohio, Indiana, Illinois, Michigan, Wisconsin) up 52,000 tons; West South Central (Arkansas, Louisiana, Oklahoma, Texas) up 22,000 tons; the Mountain States (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada) up 78,000 tons; and the Pacific States (Washington, Oregon and California) also up 78,000 tons.

Decreases in tonnage were severe in some areas, due in considerable part to soil bank and acreage reserve arrangements which took many thousands of acres out of production for the year.

The Middle Atlantic group was down 19,000 tons, although one of the states of the area, New York, increased its tonnage by 25,000 tons. Pennsylvania pushed its consumption upward by 6,000 tons and the District of Columbia, never a heavy user, upped its total by 1,000 tons. The other states of New Jersey, Delaware, Maryland and West Virginia all showed decreases.

The South Atlantic States of Virginia, North Carolina, South Carolina, Georgia and Florida experienced the greatest reductions of all with a total of 314,000 tons less than the past fiscal year. North Carolina's figures were the most in tons, 103,000, but its normal level is high enough that the percentage of loss may not be as great as would appear.

The East South Central States of Kentucky, Tennessee, Alabama and Mississippi were likewise on the short end, tonnagewise. This group was down 268,000 tons as compared to the figures of the year ended June 30, 1957.

All of this would point to an even further adjustment of the supply-demand ratio, but many in the fertilizer industry have expressed hope that 1959's record will be better for total tonnage as well as for consumption of plant nutrients. The problem will be, as usual, one of maintaining enough of a profit margin to allow for needed services to the farmer and to provide basic manufacturers, mixers and dealers enough to make their efforts worth while.

An increase in tonnage is anticipated for 1959, but mere tonnage doesn't tell the whole story. The industry should tally its year's activities in dollars earned rather than in tons delivered. One industry observer remarked the other day that the fertilizer trade is "tonnage happy."

Fertilizer business men will be happier with whatever tonnage they sell in 1959 if their efforts are rewarded in keeping with the importance of the job they do.

Licensing of Pesticide Salesmen Advocated

SHOULD pesticide salesmen be licensed by the state to operate in the area? This is a question that keeps coming up in various quarters and one due for considerable discussion at the 1959 session of the California legislature, for example.

Why should a pesticide salesman be licensed?

Naturally, there are points on both sides. Some in the trade regard this as a trend toward more regulation of the industry, while others believe that such a licensing program would reduce the number of instances where pesticides are applied incorrectly because the salesman might not have known the correct recommendations.

In the case of California, fertilizer salesmen are already licensed, so it is possible that, in the future, a man who sells a pesticide-fertilizer mixture might be required to have both a pesticide salesman's license and a fertilizer salesman's license. It is also possible, of course, that a license might be established to handle both kinds of materials as well as mixtures of them.

However, the one purpose of licensing pesticide salesmen, as outlined by California officials favoring the move, lies in making certain that the man selling pesticides or making recommendations for their use is responsible and properly qualified by expert knowledge of the nature and effects of these chemical products.

More will be heard about this matter in other states, particularly if the California legislature does pass a law making such a license mandatory.

Croplife's Home Office

Croplife

BPA — Member of Business Publications Audit

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

Jan. 20—Barley Improvement Conference, sponsored by the Malting Barley Improvement Assn., Schroeder Hotel, Milwaukee.

Meeting Memos listed above are being listed in this department this week for the first time.

Jan. 13—Pesticide meeting to discuss current recommendations, Rm. 232, Agricultural Experiment Station Building, University of Kentucky, Lexington.

Jan. 13-14—Georgia Plant Food Educational Society, Annual Meeting, Georgia Center for Continuing Education, Athens, Ga., J. Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, secretary-treasurer.

Jan. 13-15—Ninth Annual Fertilizer Dealers Training Conference, Pershing Municipal Auditorium, Lincoln, Neb.

Jan. 20-22—First Indiana Pesticide Conference, Memorial Center, Purdue University, Lafayette, Ind.

Jan. 20-22—California Weed Conference, Miramar Hotel, Santa Barbara, Cal.

Jan. 21—Second Annual Arizona Fertilizer Conference, University of Arizona, Tucson, Ariz.

Jan. 21-22—Indiana-Ohio Aerial Applicators Conference, Memorial Center, Purdue University, Lafayette, Ind.

Jan. 21-23—Southern Weed Conference, 12th annual meeting, Washington-Youree and Captain Shreve Hotels, Shreveport, La., Dr. Walter K. Porter, Jr., secretary-treasurer.

Jan. 21-22—Northwest Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore.; George Kitzmiller, Pacific Cooperatives, Portland, conference chairman.

Jan. 21-23—Western Cooperative Spray Project, Benson and Imperial Hotels, Portland, Ore.

Jan. 22—Seventh Annual Fertilizer Dealers Day, Oregon State College, Corvallis, Ore.

Jan. 22-24 — Agricultural Aircraft Assn., Senator Hotel, Sacramento, Cal.; Wanda Branstetter, Chandler Field, Fresno, Cal., Executive Secretary.

Jan. 27-28 — Insecticide - Fungicide Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Jan. 27-28—Nematology Workshop, Portland, Ore., sponsored by Shell Chemical Corp.

Jan. 27-28—Soil Science Society of North Carolina, Williams Hall, North Carolina State College, Raleigh.

Jan. 28-29 — Illinois Custom Spray Operators' Training School, 11th annual meeting, University of Illinois, Urbana.

Jan. 29—South Dakota Fertilizer Dealer Short Course, South Dakota State College, Brookings, S.D.

Jan. 29-30—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver. D. E. Garrison, Box 623, Greeley, Colo., secretary.

Feb. 4—Fertilizer Salesmen's Training School, National Plant Food Institute, Columbus, Ohio.

Feb. 9-10—National Cotton Council, 21st annual meeting, Dinkler Plaza Hotel, Atlanta, Ga.

Feb. 10-12 — Agricultural Chemicals Conference, sixth annual meeting, Texas Technological College, Lubbock, Texas.

Feb. 12-13—Midwestern Agronomists-Fertilizer Industry Representatives, 11th annual meeting, Edgewater Beach Hotel, Chicago, Ill., sponsored by National Plant Food Institute.

Feb. 13—National Safety Council, executive committee of the fertilizer section, winter meeting, Heart of Atlanta Motel, Atlanta, Ga.

Feb. 13-18 — Maryland Agricultural Pesticides Conferences; at Salisbury State Teachers College Feb. 13, La Plata Feb. 16, and Frederick Feb. 18.

Feb. 18-20—Midwestern Chapter of the National Shade Tree Conference, 14th annual meeting, LaSalle Hotel, Chicago, Noel B. Wysong, secretary.

Feb. 24-25—Alabama Pest Control Conference, Alabama Polytechnic Institute, W. G. Eden, Secretary-Treasurer, Alabama Association for Control of Economic Pests, Alabama Polytechnic Institute, Auburn, Ala.

March 4-5—Annual Weed and Insect Conference, Fonner Park, Grand Island, Neb.

March 17—Western Agricultural Chemicals Assn. spring meeting, Hotel Miramar, Santa Barbara, Cal. C. O. Barnard, executive secretary.

June 9-10—Seventeenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Velda Rose Motel, Hot Springs, Ark.; Maurice Rowe, Virginia Department of Agriculture, 1122 State Office Bldg., Richmond 19, Va.

June 14-17—National Plant Food Institute, Annual Convention, the Greenbrier, White Sulphur Springs, W. Va.

July 7-9 — Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conerence, Tacoma, Wash.

Nov. 4-6—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C. Dr. Vincent Sauchelli, National Plant Food Institute, chairman.

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Fertilizer Necessary for Arkansas Orchardgrass, Agronomist Maintains

FAYETTEVILLE, ARK. — "Fertilization, as indicated by soil tests, is necessary to maintain productive stands of orchardgrass in the Ozark Mountain region," contends Leslie Hileman, assistant agronomist with the University of Arkansas Agricultural Experiment Station.

Orchardgrass is one of the major permanent winter grasses on many farms in the Arkansas Ozarks.

Reporting two years' results of orchardgrass fertilization tests in Boone County, Mr. Hileman said greatest yield increases were obtained from nitrogen applied in the spring. Highest hay yields were obtained when 80 lb. an acre of nitrogen were applied as one treatment in either February or April after 50 lb. phosphate per acre had been applied the previous fall.

Splitting the nitrogen application may be beneficial where orchardgrass is to be pastured. If orchardgrass is grazed in the fall and early spring a farmer may get more grazing potential by applying 40 lb. nitrogen in the fall and another 40 lb. in early spring. At any rate, a farmer would need to gear his nitrogen fertilization program to the grazing period.

Here's how he summarized the tests: "Greatest increases in hay yields resulted from nitrogen applications, as compared with other elements.

"Phosphate application increased hay yields in 1958. Continued applications of phosphate to this soil would be necessary to maintain an adequate stand of orchardgrass.

"Potash applications gave no significant response.

"Yield responses obtained from fertilizer application were in close agreement with fertilizer recommendations made from soil tests," Mr. Hileman concluded.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

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MISCELLANEOUS

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KILL SUBMERSED water weeds which foul up motor propellers, tangle fishing gear and choke irrigation ditches with R-H Granular Weed Rhap. Inexpensive, easy to use, sure results. For details write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reasor-Hill Corporation, Box 36CL, Jacksonville, Ark.

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Sales Message Repeated Thousands of Times

Your customers will read about Elephant Brand in their local newspaper and in their favourite farm journals. They'll be reminded of Elephant Brand by highway signs between your store and their farms. Five days a week they'll listen to the new Elephant Brand radio program "Questions And Answers" and hear many additional hard-selling radio spots.

A Million Dealer Aids

Over a million dealer aid items will add extra weight at the dealer's store with "give-away" items, such as book matches, scratch pads, notebooks and a new, enlarged Ready Reckoner — all designed to build customer goodwill. New pamphlets on high analysis and high water solubility will be displayed in a colourful new pamphlet dispenser. A sparkling new window banner, decals and an Elephant Brand Wall Thermometer will identify the Elephant Brand dealer's store.

Help for your own Ad Program

The new Elephant Brand Dealer Mat Service Book, containing a wide selection of mats, is designed to help you put more "punch" in your own advertising. Both complete ads and ad parts, along with a selection of radio spots, are available free of charge.

Every Elephant Brand dealer will feel the impact of this all-out Elephant Brand advertising campaign. Plan to take full advantage of it in your sales program.

Elephant Brand

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AMMONIUM SULPHATE TRIPLE SUPER PHOSPHATE

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